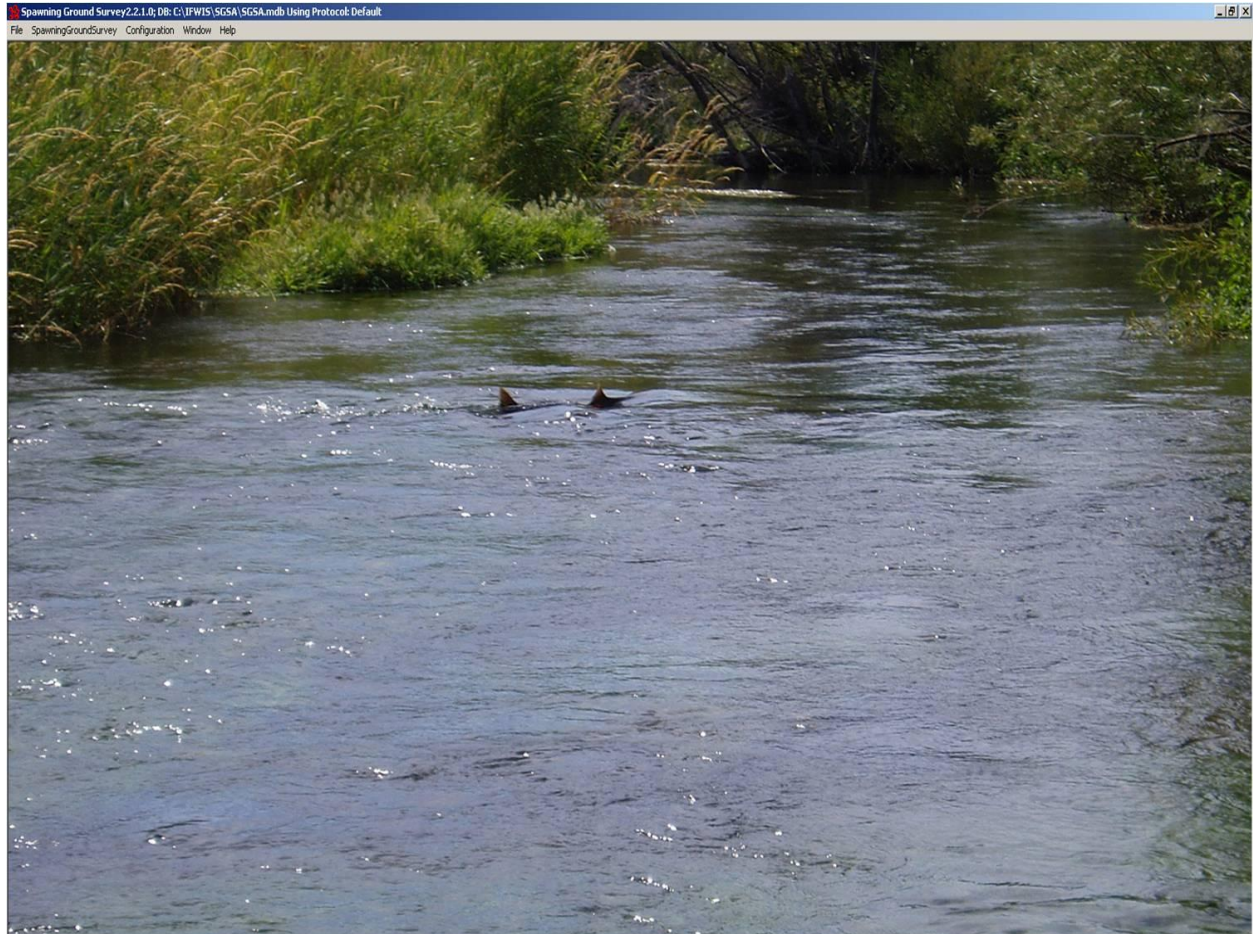


# Spawning Ground Survey 2

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## *Database User Manual*



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## Introduction

The SGS 2 program is intended to handle the entry, editing, transfer, and manipulation of spawning ground surveys including redd counts, carcass counts, and observations of live fish. The data entry models encourage the use of waypoints for observations of fish, redd, and even transect boundaries, though the use of waypoints for any aspect is never essential. The program also makes use of protocols that configure data entry for any session. They are logged with the individual surveys such that the limits and constraints imposed by the protocol are maintained as an integral part of the record reflecting the survey methods.

This manual is intended to both serve and inform new users to the SGS 2 program with its basic use as it is also intended to provide a reference document for the more experienced users. The SGS 2 program is new as of 2009, and as such, this manual can be considered to be a living document that will grow as users find new items that should be included. Comments and suggestions for improving the manual can be submitted to the developer in charge of maintaining the SGS 2 program.

The layout of this document is to cover items in the order that the user should consider them when entering a new survey of any type. Where needed, a more thorough discussion of a topic is located in the Philosophy section of the manual.

## Installation

The SGS can be downloaded from the following link:

<http://fishandgame.idaho.gov/ifwis/sgs/sgsinstall/publish.htm>

To install the program, follow the link, and you will be taken to a page with an Install button on it. Press the button, then follow the steps that come up to install the program. The first step will ask you if you want to RUN or SAVE (or CANCEL). Choose Run. Then, depending on the settings for your browser, you will be asked a second time whether or not to RUN the setup package, or you may be asked to INSTALL, or both. Choose RUN or INSTALL, or both. That will start the installation, which could take a fair amount of time, since you will be getting a blank copy of the database along with the program, and that blank copy is 37MB.

**IFWIS**  
**Spawning Ground Survey 2**

**Name:** Spawning Ground Survey 2  
**Version:** 2.3.10.0  
**Publisher:** IFWIS

The following prerequisites are required:

- Windows Installer 3.1
- .NET Framework 3.5
- Microsoft Office 2007 Primary Interop Assemblies

If these components are already installed, you can launch the application now by clicking the button below to install the prerequisites and run the application.

[Install](#)

If the application fails to install by pressing the **INSTALL** button, try launching the program directly by clicking on the launch link. This will bypass the installation of the prerequisites for the program, which you may already have on your computer. If this still doesn't work, contact the programmer.

ClickOnce and .NET Framework Resources

Once the program has installed, it may run automatically. You probably just want to exit right away, but you should certainly consider these items before working with the program:

- 1) The first time the program is run, you will get a folder at C:\IFWIS\SGS, in which you will find SGSA.mdb. You can use different versions of this database, but you should definitely read the manual before doing so, as there are some issues that need to be considered before copying the database.
- 2) This installation uses ClickOnce. There are some significant advantages with going this route (see the next item for the biggest of them), but there are two drawbacks. The first drawback is that you have to install off of the web, which would be tricky for some computers in some locations. The other drawback is that you can't install for ALL USERS. Instead, each login will have its own instance of the program. If two people log in to the same computer using two different user names, they will BOTH have to install the program individually, though the two installations of the program will use the same database. If the program is to be used on a computer that cannot be connected to the net, I have a traditional, CD-based, installation route, but see the next item.
- 3) This program has been tested by entering dozens of surveys. It was also tested on real data in the field in 2009 and 2010. It works and most of the bugs have been worked out. Once in a while, however, someone finds a new one. If you are one of those "someones" contact me, Chris Harrington, and I will work it out. One of the advantages of installing using the ClickOnce approach is that I can fix bugs and re-publish. Each time you start the program, if you have an open connection to the internet, you will receive any bug fixes (and any updates to the pick lists, such as additional streams, endpoints, survey methods, and so forth) that have become available. This means that changes can be made to the existing program without un-installing and re-installing, which is a significant advantage.
- 4) The Help Menu in the application is a work-in-progress. Eventually, it would be nice to build more help files but we need more experience with the program, first. There is one menu item that is currently functioning, and that is the "Clues" item. "Clues" can be used to track progress while updating tables, data importing and data uploading. It will let you know if everything is hunky-dory or it can also provide information about why any of those processes failed and when/where they failed. The "Diagnostic Dump" form that "Clues" generates can be captured using a screen shot ("Ctrl" + "Print Screen") and pasted into the message body of an email and sent to the programmer. A similar function that can be used when an error message is generated during any other process when using the application is ("Alt" + "E"). This will provide a more detailed description of where and why the error occurred than the description within the error message itself. Again, capture a screen shot of the description and paste it into an email and send it to the programmer. For any other troubleshooting issues, contact any of the people listed above. There is one more feature that I left in the program only reluctantly. If an error occurs, even if it is as simple as forgetting to fill in a field, you will

have the option to send the error message out via e-mail. The only reason I didn't alter this feature is that it doesn't automatically send the error message to me, but requires the user to enter an e-mail address. The information included in this message can be very valuable for tracking down problems. If you send me one of these messages, it is not entirely complete, so it would be good to add some information as to what you were doing when the error occurred. What form were you on (that's probably in the message)? What were you doing when it happened? And anything else you think is relevant (it's a good thing that fruit can't be emailed).

## Philosophy

### Protocols

Configuration capabilities are added to many programs to make it easier for the user to accomplish a certain task. Configurations may make data entry quicker and easier, allow rudimentary validation, and organize the types and location of controls. Configurations are generally, though not necessarily designed to be retained such that the next time the program is loaded, the last configuration settings are loaded, as well.

Protocols act similar to configurations, but they generally include a certain amount of documentation, and they come with one serious complication. A protocol is generally intended to be a message to other people about the purpose of the data. While the protocol can fill the same role as the description of configurations, the significance of a protocol being primarily a message to users of the data means that the protocol must follow one extra rule: The data must not be allowed to violate any assertions made by the protocol. This rule is fairly trivial during data entry, since the data will only be entered within the bounds of the protocol or configuration, anyways. The significant implication of the rule only becomes apparent after the data has been entered. Most importantly, the data can only be edited within the constraints of the protocol that was applied, which means that 1) The protocol must be stored with the data, and 2) The program must be re-configured to the protocol before data can be edited.

The second implication is the critical one for SGS 2. For spawning ground data of any sort, there will be many rows of data subsidiary to any survey. If the protocol could be changed halfway through entering data, then every row that has already been entered would have to be checked against the new rules, and altered to fit the new rules if needed. For example, if the protocol set upper and lower limits on fork length of fish, and the protocol was changed mid-entry, then all previous fish would have to be checked to see whether they fit the new protocol limits. If the limits were expanded, then of course, this check would always pass, and no changes would be needed. However, if the limits were narrowed, then some fish that had been acceptable before might no longer be acceptable, and the user would be required to fix those rows.

Therefore, any change to the protocol that makes the protocol less restrictive would be a trivial change with no cost to the user, whereas any change that makes the protocol more

restrictive may or may not require a significant effort on the part of the user. After lengthy consideration, it appeared that making a narrowing change to a protocol would entail a truly slow and ugly checking of a survey, and might entail an even uglier set of decisions by the user. While a broadening change to a protocol could be accepted without question, a narrowing change would be difficult, error prone, hard to use, and ugly to work with. Therefore, it was decided to disallow changes to a protocol during or after the entry of a survey. This decision means that editing of survey data is limited by the assertions made in the protocol under which the data was entered. This could prove to be a burden if a protocol was not well thought out before it was applied, but that is probably going to prove to be an insignificant burden. Alternatively, broadening conversions would be relatively easy to implement, yet it is not always obvious whether a change is broadening or narrowing, so allowing one without the other seems likely to cause confusion rather than benefit.

## Protocol Considerations

There are a few considerations to be made when creating a protocol. One consideration is whether or not the protocol will be used for several seasons, or will be used for only a very narrow selection of surveys. For instance, if a protocol is going to be used for several seasons, it is probably not a good idea to give it a name or description that is specific to a single year (e.g. “2009 Salmon Survey”). This is easy to do for names, but can be a bit trickier when writing a description. After all, the more detailed a description is, the more valuable it will be as a resource in the future, but the less versatile the protocol may be. A protocol that has a description detailing where it was used may be worthwhile, but it might not then be re-useable on a different stream. On the other hand, there is no cost to creating more protocols. Therefore, the goal of the name and description is to make them detailed enough to provide maximum value to future users of the data, while making them broad enough so that they can be reused easily. Furthermore, the first criterion supersedes the second criterion in those cases where a choice must be made.

The length limits that can be set in a protocol have very little value as a protocol, but considerable value for data entry. The benefit is that by setting the length limits such that they include any likely fish observed, typos that consist of an extra digit or a missing digit, will largely be caught during data entry. Therefore, it is quite reasonable to make a protocol that contains length limits even if no other settings are used. However, due to the inability to alter protocols while entering a survey, care must be taken to ensure that the limits will include all fish within the survey. Furthermore, to aid in versatility of protocols, the limits might be a bit more generous than would be actually necessary. For example, in the case of spring or summer Chinook, a maximum of 150 cm will never be seen, yet it makes a nice upper bound, because anybody who enters a length in millimeters will realize their error quickly, as will anybody who adds a digit of any value to an otherwise valid length. A minimum of 20 cm would also provide a good floor for the size, though the advantage of doing so is considerably less. The only real mistake this would prevent is the case where the true length was two digits, yet the user entered only one.



Marks are probably the part of a protocol that will take the greatest thought, yet has the least definitive answer. Any mark that is required is a mark that the user MUST indicate the status of, whether present, absent, or unknown. In many streams, knowing the state of the Ad clip will be essential for analysis, so that would be an obvious mark to make mandatory. After all, it is important to distinguish between not present and unknown for the sake of wild/hatchery analysis. However, the same could be said for a left ventral clip, since only fish raised in a hatchery receive this mark, though the mark has not been used for years on Chinook. Is it worth requiring the user to indicate absent/unknown for the left ventral mark when it is highly unlikely that any fish will have that mark? If even one was found, the answer to that question might well be yes. There is also little cost in time or effort to choosing more marks rather than less, so it is reasonable that a person might set up a protocol with more marks than they actually think would be reasonable to find. On the other hand, there is at least a little cost to making an extensive list of required marks, so perhaps it is not worth requiring really improbable marks. This is a decision for the person in charge of the survey, and should be based on what will be useful information now, as well as what will be potentially useful information in the future. Either way, if any marks are required in the protocol, it would be good to include the rationale for that decision as part of the protocol description.

The samples portion of the protocol is probably best considered in a different fashion from the way marks would be considered. One expected use of the database is to find which fish had samples taken from them, which can be done just as effectively whether the sample is mandatory or not. Therefore, which marks are set as mandatory is probably a decision best made to ensure that the user doesn't overlook some data entry. On the other hand, it would be possible to require a certain sample, and ask the person who enters the data to add a comment whenever a sample was not available.

## Waypoints

Georeferencing data has the potential to improve the versatility of data over time. Knowing that there were N redds in a stream is useful, but knowing where those N redds were located in the stream with GPS level of accuracy, is potentially much more useful. There may well be even more utility for getting even better accuracy than is currently available with a hand-held GPS unit, but doing so would be potentially damaging to a redd. Therefore, the accuracy level available with a bank located, hand-held, GPS unit, is probably a good compromise.

The SGS 2 program allows a user to tie redds, fish, and transect endpoints to specific waypoints, as well as allowing the uploading or entry of additional waypoints that are not tied to any specific item. Furthermore, it is entirely possible to tie a single waypoint to multiple fish, redds, or a combination of those and transect endpoints. Waypoints may either be uploaded en masse from a text file, or entered by hand, one at a time. Allowing the program to download the data directly from a GPS unit is an intriguing idea, but due to the proprietary nature of this action, would create a maintenance headache as software and hardware changes. Therefore,



direct downloads are not available. For tips on collecting, downloading, and managing waypoint data refer to section Managing Waypoint Data on page 56.

The one drawback of not drawing waypoints directly from the GPS units is that the datum and output style of the GPS cannot be controlled. This means that it is up to the user to download data in either UTM data, or preferably, in lat/long decimal degrees. Either way, the datum should really be WGS84. The database will record whatever datum the data is in, and there is no absolute prohibition on using a different datum, but the use of WGS84 as a standard is very strongly encouraged.

Some GPS units download the time and date when the waypoint was recorded. Originally, the intention was that the date would be used to populate the survey date in the Survey Form of SGS 2. However, it quickly became apparent that even within the Garmin family, there are only a few models that download waypoint date and time information. Unfortunately, all models in the Garmin family include a date and time in their downloads, though in most cases it is the date and time of the download, not the date and time of the survey waypoint. This makes it not only impossible to detect a date safely, but it makes it hard to do so manually, since the date and time are often quite irrelevant. Therefore, SGS 2 ignores the date. This is a very minor inconvenience, as it simply requires the data entry operator to enter the starting and ending date rather than extracting them from a file.

## Waypoint Files

Waypoint files can be obtained from virtually every modern GPS unit, and can be obtained and manipulated in a variety of different ways. All of these options result in a multitude of file formats and configurations. The SGS 2 unit that attempts to import these files is the File Extractor DLL. To create this routine, a handful of representative files were examined, and the routine will handle files of these types fairly well. However, there are many issues that can cause the importing to fail. Failure will generally result in a BAD FILE message on the import form, and the appearance of the Diagnostic button. If the Diagnostic button is visible, it can be pressed to get a modest amount of information about why the importing failed, but that message will be no more than a hint as to what the real problem is. Therefore, this section talks about what causes a file to fail.

## Import Failures

Every message displayed when the Diagnostics button is pressed starts with a number. Therefore, the error messages can be discussed based on the numbers:

1: This error message should never show up. It is nothing but a check that a certain assumption is true, and it should always be true.

2: This message should only happen if the file is empty.

3: There is an assumption that every row after the row that held the column headers, is the exact same length. This error message is saying that one of the rows has too many or too

few columns. The most likely cause of this is that one of the fields contains the delimiter character. For example, a comment field in a CSV file, that has a comma in it, will appear to have too many columns, because the comma in the comment can't be distinguished from the commas that separate the columns.

4: This is the most likely diagnostic message, and is closely related to message #3. A more thorough explanation follows, but the short answer is this: The very last row in the file has more columns than the row that has the column header, most likely because one of the fields has the delimiter character in it. This can happen quite easily in this fashion:

A file is assumed to be made up of one or more rows of data separated by whichever delimiter was chosen (commas, by default). These files generally fall into two major categories: Those that have been opened and saved from within Excel, and those that have not. Excel is a very useful tool for editing waypoint files prior to importing them, so it is common for the file to have been saved from Excel. However, Excel alters the file when it saves the file. Most files start with one or more header rows which consist of only one or two columns of data, followed by a row of column headers, and any number of rows of waypoint information. Therefore, the first couple rows might be only one or two columns followed by a block of rows that are all the same length. When Excel saves a file, it causes ALL rows to become the same length by padding the header rows with a bunch of blank columns on either the beginning or end of the row. This is fine, as the import routine is designed to strip off those extra columns.

A second issue is that Excel has no problem opening files that are not comma-separated. In fact, Excel opens Tab-separated files more easily than comma-separated. However, if Excel then saves the file as a CSV, the new file becomes comma-separated, regardless of what it was before. This can create a very serious problem, as some GPS units download Tab-delimited columns that have commas in them. As long as the file remains Tab-delimited, there is no problem with importing this file into SGS 2. However, if the file is opened in Excel and saved as a CSV file, the column that had a comma in it will become two columns in the new file. This means that all the data rows are longer than they should be, and no longer line up with the column headers. The SGS 2 import routine will not be able to find the row that has the column headers, in this case, and will identify the file as being faulty, which it is.

### *Hunting UTM's*

Once the file has passed enough tests that it is accepted as a functional file, the next step is identifying the LAT and LONG fields. If the file is Lat/Long decimal degrees, this is quite easy. The process just looks for a field that is made up of floating point numbers, has no gaps, and has either "LAT" or "LONG" (the case doesn't matter) in the column header. However, if those columns are not found, then a search is made to look for UTM data. This is done by first looking for a trio of numeric fields, which would be the ZONE, EASTING, and NORTHING fields. This is accomplished by looking for ZONE, EAST, and NORTH (case insensitive). If those are found, then the file is assumed to have UTM data, and the UTM conversion button is displayed.

Unfortunately, not all GPS units export the three components of UTM data as separate columns. Some export the UTM data as a single column. Therefore, if a field with a name that contains EAST and a field with a name that contains NORTH is not found, then a more rigorous search is performed. This search looks for a field that is a string (because having all the columns jammed together always results in a string), and one where every item in that column can be split into at least three parts. One part has to be an integer less than 100 (the zone), another has to be a number (either floating point or integer) that is between 100,000 and 1,000,000 (the Easting), and a third part has to be a number greater than 1,000,000 (the Northing). The first column that matches those criteria is used to create three new columns at the end of the existing list called "ZONE\_New", "EASTING\_New", and "NORTHING\_New". Also, diagnostic messages are attached to many of the columns indicating why they were or were not considered as holding UTM data. It is possible for all or none of the columns to have this diagnostic information, and it is of little interest. The only use for the diagnostics is if a column that does, in fact, hold UTM data, is not turned into UTM data, then the diagnostic message will state what was not adequate about the column. To see the diagnostic messages, click on the column header. If there is a message, it will be displayed.

### ***Converting Datum***

Most GPS output files put the datum in the header. If the datum is found there, the program will locate it. There are three common datum used in North America: NAD27, NAD83, and WGS84. All GPS units record in WGS84, and that is the datum that should be used for all waypoints in SGS 2. If, however, a file is obtained that is in a different datum, then the SGS 2 program will convert the data into WGS84 as it is read. If the file contains UTM data, the conversion will happen when the UTM to Decimal Degree button is clicked. Therefore, the program will try to keep all waypoints in WGS84. However, every conversion, whether from datum to datum, or UTM to Lat Long, is associated with a minor amount of error (generally less than a meter, but sometimes up to a couple meters). Since GPS units record data in WGS84, any output in any other datum will already have a slight error, which SGS 2 will compound by converting the waypoints back to WGS84. The error doesn't reverse by converting back, it multiplies.

### ***Redds***

Though the SGS 2 program was originally focused on redd counts, redds are an odd beast to work with. The primary problem with redds is that there is virtually no data associated with them. Historically, before the advent of handheld GPS units, a redd survey had a single number of new redds, and possibly, a single number of previous redds. Redds didn't have names or locations. This was changed when handheld GPS units came into common use, as there was now a reason to keep the redds separate, so that spatial distribution could be studied. Furthermore, while redds were named and labeled in the field on those streams that would see multiple surveys over the course of a single year, those names were not retained when only a single count of all redds was recorded for a survey. Retaining the redd names in the database, along with altering the data recorded in the field, allows for some studies of the

persistence of redds over a year. Therefore, instead of a single count of all the redds in a survey, there is now a record for each redd, though there may be virtually no information contained in that record except a name, which might be the name of a waypoint, and a tie to a waypoint, which itself, might serve multiple purposes (as a redd, transect boundary, live fish observation, or carcass). This paucity of information stored with a redd causes a bit of confusion for SGS in general. While the spatial distribution of the data is quite valuable, it is mostly of value for viewing the distribution of redds in mapping software, which is not available in SGS 2. In fact, in SGS 2, most people will only be wanting to see the new and previous redd counts. Entering two numbers is certainly much faster and easier than entering a whole series of redd counts. However, since spatial distribution is necessary, the slower entry is necessary.

## **Fish**

A full 80-90% of the users time will be spent working on this form due to the large amount of data that can be associated with each fish as opposed to the minimal data associated with each redd. Improving the efficiency of any other form is insignificant when compared to improvements to this form. Unfortunately, there are items on this form for which a great improvement in efficiency is not readily available. Different data entry patterns have been considered, and consistently, they have been rejected. Too much of the data that can be entered for a carcass, in particular, is non-numeric, which means that the only safe way to enter that data is by picking it from a list.

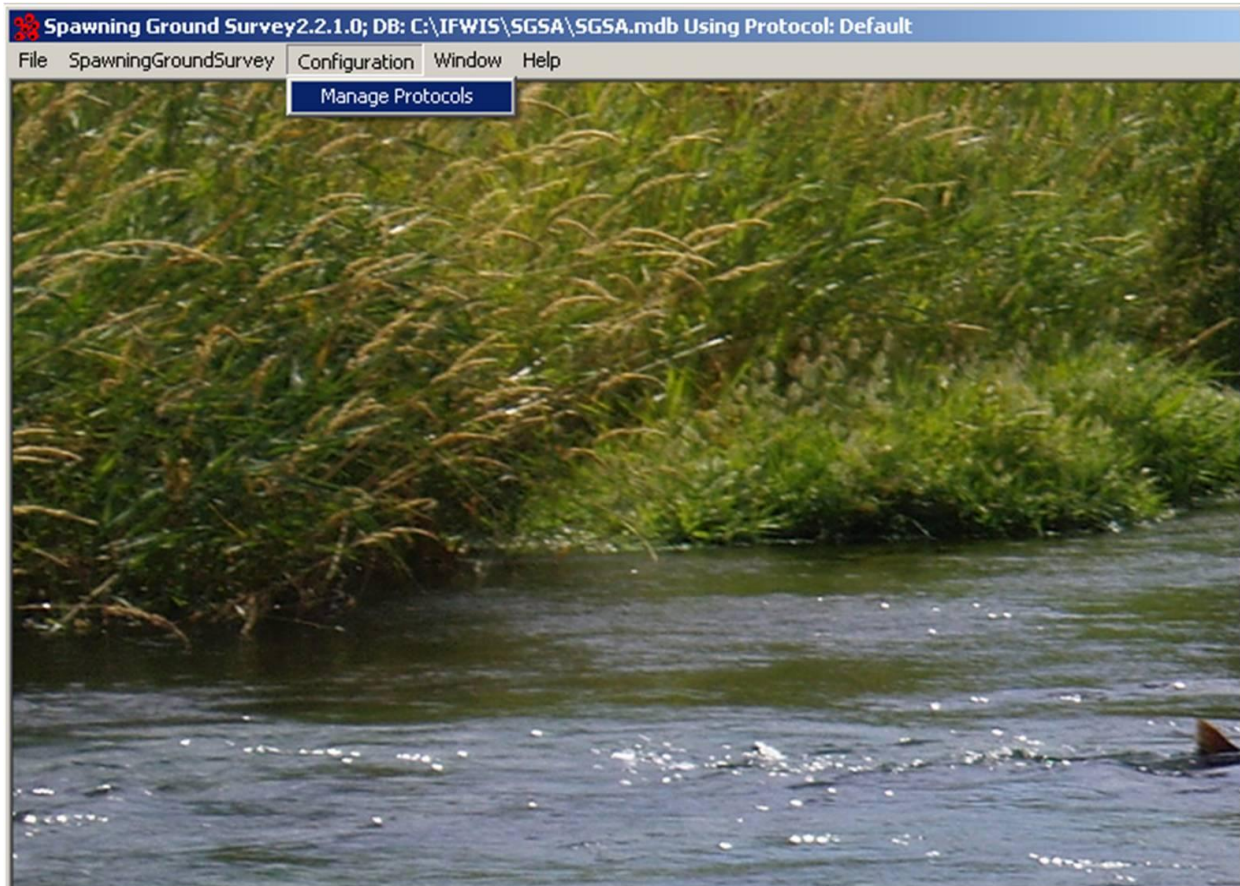
The fish form can be used to enter either live fish observations or carcass information. They can be entered in any order, or interspersed between each other. Naturally, there are several fields that apply to only one or the other, and which fields are enabled is determined based on whether or not the Carcass toggle is checked. The other thing to note is that this form is highly directed by the settings of the protocol. Under the default setting, the only field that is mandatory is the number of fish. Every other field can be made mandatory based on the settings of the protocol. If a field is mandatory, the label for that field will be written in red. If samples or marks must be addressed, according to the protocol, the tab labels will be written in red.

## **Procedural**

### **Configuration Menu**

The first action taken upon starting the SGS 2 program for data entry should be to consider the “Configuration”. All surveys have to be saved using a protocol in which at least a modest amount of consideration should be devoted toward choosing which protocol to use. If no protocol has been used, which might happen for instance on a new install, then a default protocol will be created and applied automatically.

Note: The program will retain the last protocol used, so if only one protocol will be used for an entire season, this step may be skipped. However, in all cases, taking a moment to consider the protocol that will be used is essential, because the consequence of getting it wrong can be quite bothersome.



Upon opening the “Manage Protocols” form, the user will find a grid of all protocols in that copy of the database (there could be multiple databases on any given computer). The currently selected protocol will have a small triangle to the left of the name and will appear below the grid under “Current Protocol”. The various tabs on the form will allow the user to peruse the settings of the current protocol.

Protocol Name	Protocol ID	Protocol Description
Default	a24ba016-3065-4a00-b55e-d531807e806f	This is the base configuration for a Spawning Ground Survey. N...
ISS	b9509a71-9ab1-4229-b6af-300d16dbd44f	This is the base configuration for a Spawning Ground Survey. N...
2009 ISS SGS POWELL	66b7de58-62cd-498f-9c81-4f9ba11778ba	This is the spawning ground survey protocol for Crooked Fork C...
ISS SGS Upper Salmo...	0a6f16c6-6269-40c9-b7fe-f73f92d7f58f	ISS spawning ground surveys are multiple pass ground counts.
ISS SGS PAHSIMERO...	f791a407-4f90-485f-9373-f37bb47336e1	These are the protocols for 2009 ISS Pahsimeroi spawning ground
ISS General	e2fbeece-8e1b-4e0a-ac07-a5dc5a0a4072	This is the base configuration for a Spawning Ground Survey. N...

**Current Protocol:** ISS SGS Upper Salmon and Middle Fork

Buttons: DELETE THIS PROTOCOL, SAVE CHANGES, USE THIS PROTOCOL, QUIT IN DISGUST, EXPORT THIS PROTOCOL

Tabs: Descriptions, Form Settings, Measurement Settings, Marks and Samples, Sample Prefixes

**Protocol Name:**  
 ISS Upper Salmon and Middle Fork protocols  
 ALTER NAME

**Description:**  
 ISS spawning ground surveys are multiple pass ground counts. Each new redd is assigned a number, flagged, and waypointed on each survey. Length, sex, marks, and percent spawn is recorded for each carcass. Otoliths are taken in the Middle Fork Salmon River. The presence or absence of CWTs, Ad clips, and opercle punches are mandatory for each carcass.  
 ALTER DESCRIPTION

Altering the name and/or the description of an existing protocol may make it difficult for other users to find a protocol that they are familiar with.  
 Therefore, change these only if you are either making a new protocol, or if you know that nobody else will be confused by the change.

To create a new protocol, choose an existing protocol to start from and alter the settings on the various tabs to configure the new protocol. In most cases, it is advisable to leave the name and description alone until all other changes have been made. This is to ensure that the description can be written to explain the intentions of the protocol.



## Form Settings

The Form Settings page allows you to require certain data points for each survey, fish, or redd. It also allows you to pad waypoint and redd numbers. When your redd and/or waypoint numbers are entered or uploaded it pads the numbers to a specified number of digits for uniformity. For example if you enter redd numbers as BB1, BB2, and BB33 it will automatically adjust those numbers to BB001, BB002, and BB033, if you were to chose to pad to 3 digits.

**Protocols**

Protocol Name	Protocol ID	Protocol Description
Default	a24ba016-3065-4a00-b55e-d571807e806f	This is the base configuration for a Spawning Ground Survey. N...
iss	b9509a71-9ab1-4229-b6af-300d16dbd44f	This is the base configuration for a Spawning Ground Survey. N...
2009 ISS SGS POWELL	66b7de58-62cd-498f-9c81-4f9ba11778ba	This is the spawning ground survey protocol for Crooked Fork C...
ISS SGS Upper Salmo...	0a6f16c6-6269-40c9-b7e-f73f92d7f58f	ISS spawning ground surveys are multiple pass ground counts.
ISS SGS PAHSIMERO...	f791a407-4f90-485f-9373-f37bb47336e1	These are the protocols for 2009 ISS Pahsimeroi spawning ground
ISS General	e2fbeece-8e1b-4a0a-ac07-a5dc5a0a4072	This is the base configuration for a Spawning Ground Survey. N...

DELETE THIS PROTOCOL    **Current Protocol:** ISS SGS Upper Salmon and Middle Fork    SAVE CHANGES    USE THIS PROTOCOL    QUIT IN DISGUST    EXPORT THIS PROTOCOL

Descriptions   **Form Settings**   Measurement Settings   Marks and Samples   Sample Prefixes

**Survey Form**

- ☐ Book Number is Mandatory
- ☒ Survey Direction is Mandatory
- ☒ Coordinator Name is Mandatory

**Fish Form**

- ☐ Age is Mandatory (live only)
- ☒ Gender is Mandatory
- ☐ Percent Spawned is Mandatory
- ☐ Carcass Condition is Mandatory
- ☒ Sex Determination is Mandatory

**Redds and Waypoint Names**

☐ Don't Pad Numbers

☒ Pad Numbers to four places.

☐ Pad Numbers to  places

**Pad This!**

- ☒ Pad Redd Names
- ☒ Pad Waypoint Names



## Measurement Settings

The Measurement Settings page allows you set boundaries on lengths to help prevent data entry error and to set the units (centimeters or millimeters) of the lengths. Click on the “Change Settings” button (see below) to enter the minimum and maximum lengths required. Be sure to read the philosophy section above before doing this.

**Protocols**

Protocol Name	Protocol ID	Protocol Description
Default	a24ba016-3065-4a00-b55e-d531807e906f	This is the base configuration for a Spawning Ground Survey. N...
ISS	b9509a71-9ab1-4229-b6af-300d16db044f	This is the base configuration for a Spawning Ground Survey. N...
2009 ISS SGS POWELL	66b7de58-62cd-498f-9c81-4f9ba11778ba	This is the spawning ground survey protocol for Crooked Fork C...
ISS SGS Upper Salmo...	0aef16c6-6269-40c9-b7fe-f73f92d1f38f	ISS spawning ground surveys are multiple pass ground counts.
ISS SGS PAHSIMERO...	f791a407-4f90-485f-9373-f37bb4f336e1	These are the protocols for 2009 ISS Pahsimeroi spawning ground
ISS General	e2fbeece-8e1b-4e0a-ac07-a5dc9a0a4072	This is the base configuration for a Spawning Ground Survey. N...

DELETE THIS PROTOCOL    **Current Protocol:** ISS SGS Upper Salmon and Middle Fork    SAVE CHANGES    USE THIS PROTOCOL    QUIT IN DISGUST    EXPORT THIS PROTOCOL

Descriptions | Form Settings | **Measurement Settings** | Marks and Samples | Sample Prefixes

Measurement	Minimum Value	Maximum Value	Mandatory
Fork Length			
MEHP Length			
Total Length			

All lengths are in: **millimeters.**

**CHANGE SETTINGS**

**Measurement Rules**

WARNING: Be aware that only whole numbers can be used, so if you are measuring to tenths of centimeters, just use millimeters instead.

Units: ☒ cm ☐ mm

Fork Length: ☐ **Mandatory**    Min     Max

MEHP Length: ☐ **Mandatory**    Min     Max

Total Length: ☐ **Mandatory**    Min     Max

CANCEL    OK

Click OK to save changes.

## Marks and Samples

Found on the Marks and Samples page is a checkbox for “Marks are Mandatory”, and “Samples are Mandatory”. These boxes are there in case you decide not to make any particular mark or sample mandatory. For instance, if you choose to make one or more marks mandatory on the Visual Selector form, then the “Marks are Mandatory” checkbox does nothing. However, if no marks are mandatory, then checking this box would mean that the data entry operator would be required to interact with the marks when entering a fish. This could include indicating the status of a mark, clicking the No Marks button, or just looking at the mark page without taking any further action. Therefore, the purpose of these checkboxes is to ensure that the data entry operator must indicate that they have thought about the marks when entering a fish, even if there were no marks. Of course, if a few marks are mandatory, they will have to indicate the status of those marks, which means that they will have to interact with the marks form anyways, which is why the checkbox has no impact if some marks are mandatory. The same consideration is true for Samples.

Protocol Name	Protocol ID	Protocol Description
Default	a24ba016-3065-4a00-b55e-d531807e806f	This is the base configuration for a Spawning Ground Survey. N...
iss	b9509a71-9ab1-4229-b6af-300d16dbd44f	This is the base configuration for a Spawning Ground Survey. N...
2009 ISS SGS POWELL	66b7de58-62cd-498f-9c81-4f9ba11778ba	This is the spawning ground survey protocol for Crooked Fork C...
ISS SGS Upper Salmo...	0a6f16c6-6269-40c9-b7fe-f73f92d7f58f	ISS spawning ground surveys are multiple pass ground counts.
ISS SGS PAHSIMERO...	f791a407-4f90-485f-9373-f37bb47336e1	These are the protocols for 2009 ISS Pahsimeroi spawning ground
ISS General	e2fbeece-8e1b-4e0a-ac07-a5dc5a0a4072	This is the base configuration for a Spawning Ground Survey. N...

DELETE THIS PROTOCOL    **Current Protocol: ISS SGS Upper Salmon and Middle Fork**    SAVE CHANGES    USE THIS PROTOCOL    QUIT IN DISGUST    EXPORT THIS PROTOCOL

Descriptions   Form Settings   Measurement Settings   **Marks and Samples**   Sample Prefixes

Marks			Samples			
Mark Name	Location	Default Value	Sample Type	Number Prefix	Default Value	Default Comment
Clip	Adipose Fin	N	DNA	09-		
PIT Tag		N	Aging Fin	09-		
Punch	Right Opercle	N	Snout	10NG		
			OTO	09-		

☒ Marks are Mandatory    CHANGE MARK SETTINGS    ☐ Samples are Mandatory    CHANGE SAMPLE SETTINGS

## Marks

**Visual Mark Selector**

**FISH LEFT**

**FISH RIGHT**

OTC THERMAL OTHER

Default Choices

<< LAST MARK

Default To: ☒ Absent ☐ Unknown ☐ NONE

NEXT MARK >>

CANCEL

OK

From the Marks and Samples page you can require certain marks to be addressed. **For the purpose and function of this database tags are considered marks.** Click on the “Change Mark Settings” button to add the required marks to the protocol.

That will open the Visual Mark Selector. Click on the appropriate button for the mark, click which default value you would like for the mark, then click “Next Mark” to set the default for the next mark and repeat. When you have selected which marks you require data for click “OK”. This returns you to the Marks and Samples page. You can then choose the “Marks are Mandatory” button to require that the person entering the data enter a value for each of the marks you selected. You can do the same for samples. **Note: if an AD Clip is present then the Adipose fin is absent and vice-versa. The mark is Ad Clip, not Ad Fin.**

## Samples

Most of the protocol settings are saved into the database along with the protocol itself. The only exception to this is the “Sample Number Prefixes”, which can be either entered from the “Configure Samples” form, or from the “Sample Prefixes” tab.

The “Configure Samples” form can be found by clicking the “Marks and Samples” tab and then choosing the “Change Sample Settings” tab.

**Protocols**

Protocol Name	Protocol ID
Default	44388418-c1ef-4ab8-999e-77f45ba9c974
2009 ISS SGS POWELL	66b7de58-62cd-498f-9c81-4f9ba11778ba
ISS SGS POWELL	144d9ddd-f6f3-493b-8801-caa0bdc14525

Current Protocol: ISS SGS POWELL

Descriptions | Form Settings | Measurement Settings | **Marks and Samples** | Sample Prefixes

**Marks**

Mark Name	Location	Default Value
Clip	Adipose Fin	N
Coded-Wire T...		N
Punch	Right Opercle	N
PIT Tag		N

☒ Marks are Mandatory

**Samples**

Sample Type	Number
Snout	
DNA	
Aging Fin	

☐ Samples are Mandatory

**Configure Samples**

Sample Type: Snout

Default Value: [dropdown]

☐ Mandatory

Label Prefix: [text box]

Default Comment: [text area]

ADD SAMPLE | DELETE SAMPLE | CLEAR ALL

CANCEL | OK

You can then choose the configuration you want for each sample type. For example if you want your surveyors to take otoliths (or snouts, DNA, Aging fin, scales, etc) on each carcass they encounter then you would want to make a data entry for that sample mandatory, rather than leave it blank if they did not take one. Otherwise you wouldn't know if they did not take it for a reason or if the absence of data is a data entry error.

**Configure Samples**

Sample

**Sample Type**  
 OTO  
 Snout  
 DNA  
 Aging Fin  
 Scale  
 OTO  
 Unknown

**DefaultValue**  
 Label Prefix

**ADD SAMPLE** **DELETE SAMPLE** **CLEAR ALL**

SampleType	Mandatory	DefaultValue	Prefix
▶ Snout	<input type="checkbox"/>		
DNA	<input type="checkbox"/>		
Aging Fin	<input type="checkbox"/>		

**CANCEL** **OK**

**Configure Samples**

Sample

**Sample Type**  
 OTO

**DefaultValue**  
 Did Not Take  
 Could Not Take

☐ **Mandatory**

**Default Comment**

**ADD SAMPLE** **DELETE SAMPLE** **CLEAR ALL**

SampleType	Mandatory	DefaultValue	Prefix
▶ Snout	<input type="checkbox"/>		
DNA	<input type="checkbox"/>		
Aging Fin	<input type="checkbox"/>		

**CANCEL** **OK**

**Configure Samples**

Sample

Sample Type:  Default Value:

☒ Mandatory Label Prefix:

Default Comment:

ADD SAMPLE DELETE SAMPLE CLEAR ALL

	SampleType	Mandatory	DefaultValue	Prefix
	Snout	<input type="checkbox"/>		
	DNA	<input type="checkbox"/>		
▶	Aging Fin	<input type="checkbox"/>		
	OTO	<input checked="" type="checkbox"/>	Did Not Take	09-

CANCEL OK

Once you enter the Sample Type, Default Value, Mandatory, and Label Prefix, click the “Add Sample” button to add that Sample Type to the protocols. Once you have added all your Sample Types you want addressed then click “OK” to lock them in. Those sample types then need to be addressed during data entry, where the person entering the data can change the Default Value to “<null>”, “Did Not Take”, or “Could Not Take” and add the suffix to the sample number if one was taken.

Using defaults for sample prefixes is merely for the ease of data entry if many samples are taken and is purely optional. Using sample defaults (i.e. making them mandatory) ensures that a) the surveyor is looking for the samples specified (CWT, Otoliths, etc) and b) that the evaluator knows if the sample was addressed at the time of survey.

Note: The sample prefixes are not included in the default protocol because they would restrict a protocol to the use of only a specific set of sample numbers, which might limit the protocol use to only a single year in a single drainage. Furthermore, the sample prefixes add no real value to the protocol, so there is no point in saving them with the data. After all, the sample numbers are important, while the prefix is just a convenience. Of course, if your prefix begins with the year then that will need to be changed annually.

Any samples added in the “Configure Samples” form are stored for that sample type. It is not possible to enter two different prefixes, though it is possible to enter two samples of the same type. This is easier to see on the Sample Prefixes tab, as there is only one row for each sample type, and therefore, only a single prefix can be added for each sample type.

Sample prefixes are not saved by protocol, but by the program. Therefore, the user can enter sample prefixes one time, where they will remain the same until changed. This is largely

due to the fact that sample prefixes are nothing more than a convenience, so if they are wrong, it makes little difference.

Protocols

Protocol Name	Protocol ID	Protocol Description
Default	a24ba016-3065-4a00-b55e-d531807e806f	This is the base configuration for a Spawning Ground Survey. N...
iss	b9509a71-9ab1-4229-b6af-300d16dbd44f	This is the base configuration for a Spawning Ground Survey. N...
2009 ISS SGS POWELL	66b7de58-62cd-498f-9c81-4f9ba11778ba	This is the spawning ground survey protocol for Crooked Fork C...
ISS SGS Upper Salmo...	0a6f16c6-6269-40c9-b7fe-f73f92d7f58f	ISS spawning ground surveys are multiple pass ground counts.
ISS SGS PAHSIMERO...	f791a407-4f90-485f-9373-f37bb47336e1	These are the protocols for 2009 ISS Pahsimeroi spawning ground
ISS General	e2fbeece-8e1b-4e0a-ac07-a5dc5a0a4072	This is the base configuration for a Spawning Ground Survey. N...

DELETE THIS PROTOCOL

Current Protocol :  
ISS SGS Upper Salmon and Middle Fork

SAVE CHANGES

USE THIS PROTOCOL

QUIT IN DISGUST

EXPORT THIS PROTOCOL

Descriptions | Form Settings | Measurement Settings | Marks and Samples | Sample Prefixes

	SampleType	Prefix
	Snout	10NG
	DNA	09-
	Aging Fin	09-
	Scale	09-
	OTO	09-



Note: The name MUST be changed in order to save the new protocol, as the new protocol must also be saved in order to be used.

Protocol Name	Protocol ID	Protocol Description
Default	a24ba016-3065-4a00-b55e-d531807e806f	This is the base configuration for a Spawning Ground Survey. N...
iss	b9509a71-9ab1-4229-b6af-300d16dbd44f	This is the base configuration for a Spawning Ground Survey. N...
2009 ISS SGS POWELL	66b7de58-627d-498f-9c81-4f9ba11778ba	This is the spawning ground survey protocol for Crooked Fork C...
ISS SGS Upper Salmo...	0a6f16c6-6739-40c9-b7fe-f73f92d7f58f	ISS spawning ground surveys are multiple pass ground counts.
ISS SGS PAHSIMEROI...	f791a407-4790-485f-9373-f37bb47336e1	These are the protocols for 2009 ISS Pahsimeroi spawning ground
ISS General	e2fbeece-9e1b-4e0a-ac07-a5dc5a0a4072	This is the base configuration for a Spawning Ground Survey. N...

Current Protocol: ISS SGS Upper Salmon and Middle Fork

Buttons: DELETE THIS PROTOCOL, SAVE CHANGES, USE THIS PROTOCOL, QUIT IN DISGUST, EXPORT THIS PROTOCOL

Form Fields: Protocol Name (I'm sooooo lost right now.), Description (ISS spawning ground surveys are multiple pass ground counts. Each new redd is assigned a number, flagged, and waypointed on each survey. Length, sex, marks, and percent spawn is recorded for each carcass. Otoliths are taken in the Middle Fork Salmon River. The presence or absence of CWTs, Ad clips, and opercle punches are mandatory for each carcass.)

Buttons: ALTER NAME, ALTER DESCRIPTION

Text: Altering the name and/or the description of an existing protocol may make it difficult for other users to find a protocol that they are familiar with. Therefore, change these only if you are either making a new protocol, or if you know that nobody else will be confused by the change.

Any changes to a protocol (except for the sample prefixes), even if they are immediately undone, will be recognized by SGS 2 as changing the protocol. In which case, the user will not be able to use that protocol until it has been saved under a new name. This may not always be a desirable action, but it is the safest way for the program to behave. Click “Save Changes” to...save the changes. Highlight the protocol you want to use by clicking the button next to it and then click “Use This Protocol” to make that the default protocol for a database.

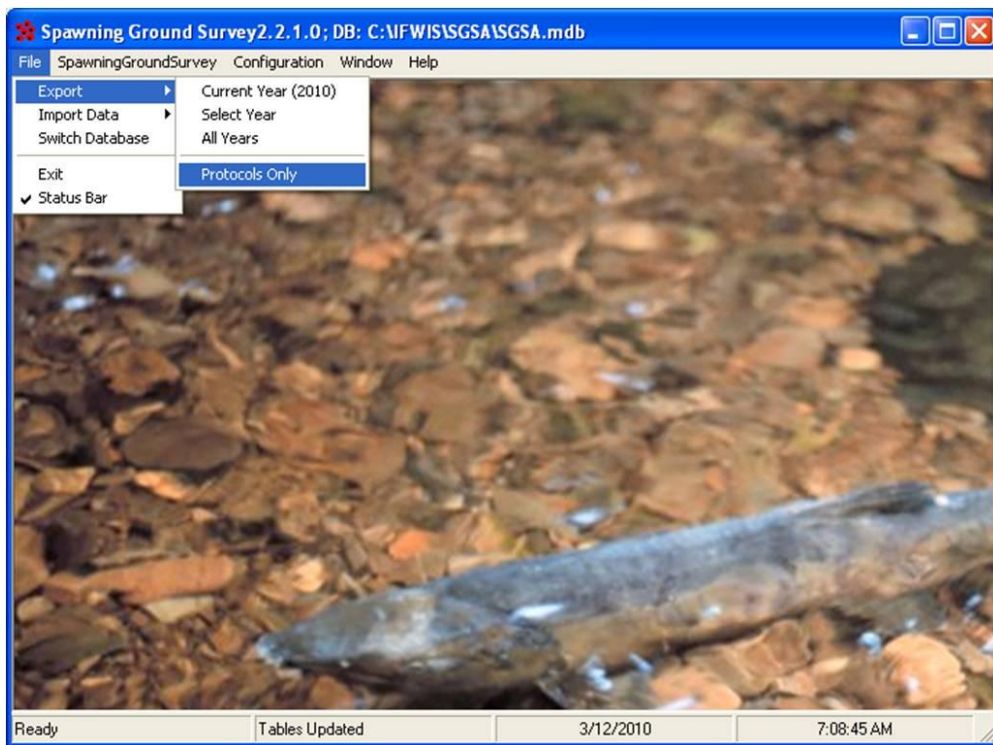
However, if you make a change and either do not want to save the change or want to undo the change, there are two options to avoid the necessity of saving the new protocol.

The easiest option is to select a different protocol from multiple protocols already in the database, and then re-select the one you were on. This will re-load the original protocol while throwing out any changes that had been made. The second option is to choose the “Quit In Disgust” tab on the protocol form and go back to re-enter it.

Note: Quitting the form will cause a protocol to be selected, either the one already in use or the default protocol. This will depend on whether or not there was already an existing protocol selected. There is an option to delete an existing protocol, but it is not an absolute right.

Note: Every survey MUST have a protocol, so deleting a protocol that is already in use by a survey is not allowed. Furthermore, if the protocol was imported from a different database, then deleting an unused protocol will not necessarily get rid of it since it could be re-imported at a later date.

One last feature on the “Protocol” form is the button for exporting a single protocol. On the main form, it is possible to export all of the protocols in one batch.



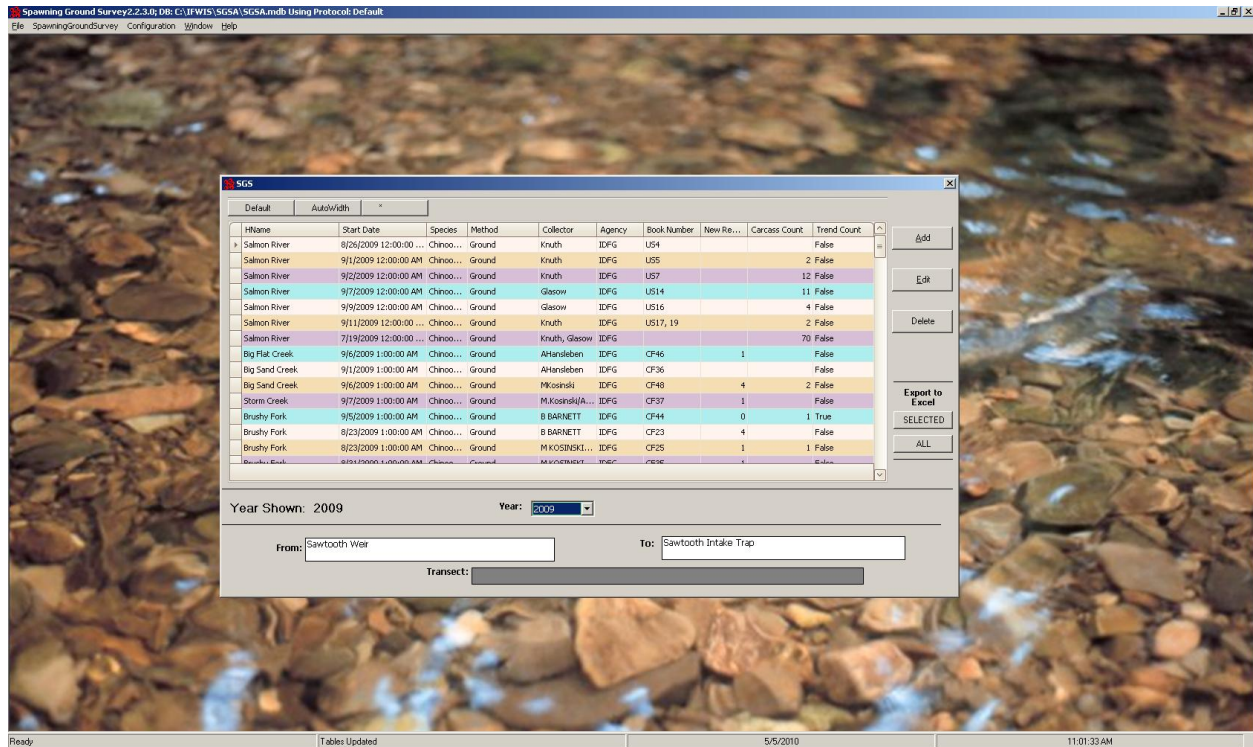
However, the button on the “Protocol” form allows the user to export a single protocol in a file rather than all of the protocols at once. A protocol file created in this fashion will be small, but is otherwise no different from a file created by exporting all the protocols from the Main form.

At any time, it is possible to quit the “Protocol” form without saving the existing protocol or choosing a protocol. However, a protocol will be used regardless of whether or not one was selected. Once the protocol form has been exited by these means, the protocol in use for a new survey will be displayed in the title bar of the SGS 2 program.

## Survey Management Form

To open the Survey Management Form go to “SpawningGroundSurvey” in the upper left menu. When you see “SGS” appear then click on it.

### Exploring Surveys



This form has one central grid which is intended to allow the user to be able to perform a cursory review of the surveys that have been entered into the current database. The grid contains a large number of visible columns along with a large number of hidden columns, but it is not comprehensive enough to be used for a thorough review. Instead, the purpose of the grid is to give the user sufficient information to decide which surveys to add, edit, delete or export to Excel for further examination.

Note: The columns that are displayed by default are not the total number of potentially useful columns that are available, nor are they necessarily useful. Therefore, it is advisable to examine the columns available in the “Column Chooser” box to see whether or not any of the hidden columns would be more suitable. The visible columns that are provided by default just happen to be the ones with the widest value, but not taking up too much space making the grid hard to read. If neither the columns provided by default or provided by the “Column Chooser” box are adequate for reviewing the surveys, it will be necessary to export the surveys to Excel (this subject is covered later in the manual).

HName	Start Date	Species	Method	Collector	Agency	Book Number	New Re...	Carcass Count	Trend Count
Crooked Fork Lochsa Ri...	9/16/2009 1:00:00 AM	Chinoo...	Ground	Hansleben/K...	IDFG	CF65		10	False
Crooked Fork Lochsa Ri...	8/7/2009 1:00:00 AM	Chinoo...	Ground	Kosinski; Ha...	IDFG	CF03			False
Crooked Fork Lochsa Ri...	8/8/2009 1:00:00 AM	Chinoo...	Ground	Kosinski, Mic...	IDFG	CF05			False
Crooked Fork Lochsa Ri...	8/6/2009 1:00:00 AM	Chinoo...	Ground	A HANSLERBEN	IDFG	CF02	1		False
Crooked Fork Lochsa Ri...	9/9/2009 1:00:00 AM	Chinoo...	Ground	B. Barnett	IDFG	CF58	2		False
Crooked Fork Lochsa Ri...	9/9/2009 1:00:00 AM	Chinoo...	Ground	B. Barnett	IDFG	CF57	2		False
Crooked Fork Lochsa Ri...	9/9/2009 1:00:00 AM	Chinoo...	Ground	B. Barnett	IDFG	CF56	0		False
Crooked Fork Lochsa Ri...	9/9/2009 1:00:00 AM	Chinoo...	Ground	B. Barnett	IDFG	CF55	0	1	False
Crooked Fork Lochsa Ri...	9/9/2009 1:00:00 AM	Chinoo...	Ground	M.Kosinski	IDFG	CF54	0		False
Crooked Fork Lochsa Ri...	8/8/2009 1:00:00 AM	Chinoo...	Ground	A HANSLERBEN	IDFG	CF04			False
Crooked Fork Lochsa Ri...	8/13/2009 1:00:00 AM	Chinoo...	Ground	M KOSINSKI	IDFG	CF06	5		False
Crooked Fork Lochsa Ri...	8/27/2009 1:00:00 AM	Chinoo...	Ground	M.Kosinski	IDFG	CF28			False
Crooked Fork Lochsa Ri...	8/26/2009 1:00:00 AM	Chinoo...	Ground	J CASSINELLI	IDFG	CF27	2	2	False
Crooked Fork Lochsa Ri...	9/8/2009 1:00:00 AM	Chinoo...	Ground	B BARNETT	IDFG	CF49	7	6	False

Below the grid is a “Year” box. While the grid can already be sorted by date, this will have little value, as few surveys will be conducted on any given date. More likely, it will be more helpful to see the surveys for an entire year, which is the purpose of the “Year” box feature. The drop down “Year” box option will show a list of all of the years for which there are surveys in the database. By default, the current year will be displayed. Nevertheless, if the user wishes to display surveys from previous years, they will be found in the drop down list. Select the preferred year and the grid will change to display that year’s survey data.

At the bottom of the “SGS” form, there are three pieces of information that could not easily be added as columns in the grid. The “From”, “To”, and “Transect” boxes are displayed in labels.

**Note:** Since the starting and ending points could be either distances up stream or waypoints and since the transect names were not readily accessible, there was not a sound query that could handle the actual starting and ending points for all surveys in the grid. Therefore, when the user selects a survey from the grid, the labels are updated to show the correct information for the current selected item.

### Adding a New Survey

To begin entering a new survey, click the “Add” button located to the right of the grid. This will transition the program to a form that will allow the entry of one or more grids in a row.

**Note:** Once the “Add” button has been selected, the “Configuration” menu item is disabled. It will no longer be possible for the user to change the protocol. It is very important

to have decided which protocol is to be used prior to this step, changing the protocol in the middle of entering a new survey would cause more trouble than it could possibly be worth.

**Note:** When entering a Null Survey (an annual, index count which was not done), one should enter all the information for the survey that would normally be entered if the survey had occurred (stream, boundaries, method, coordinator, etc.). Since the survey was not done, there is not a specific date to enter, but the record will document why this survey was not done for the year. Therefore, enter 1/1/YYYY and 12/31/YYYY as the StartDate and EndDate where YYYY is the year for which the survey was not done. Enter a Survey Note explaining why the survey did not occur. For example, enter a note like “No count due to wildfires” or “No count due to unavailable aircraft”. Select the ReddCount and TrendCount flags and then commit the record since there are not any redds or carcasses.

Long term index counts should be done regardless of escapement levels. A Null count is not the same as a count of zero. Null surveys are place holders for long term trends. They document that a survey was not done as opposed to data that is just missing. They will maintain the continuity of records per year for long term trends and explain why a survey was not done.

### Editing Surveys

To edit a survey; select the desired survey to be edited and then click the “Edit” button located to the right of the grid. This will transition the user to the same form used for adding surveys, but some of the features will be disabled. The features that will be disabled, and in what fashion, is dependent on whether the survey is “Read-Only” (if the survey was imported from a coordinator version of the SGS 2 program) or came from anywhere else (field version – allowed to edit). In the case of “Read-Only” surveys, no edits are possible. In this case “editing” will actually mean “reviewing”.

**Note:** The “Configuration” menu item will be disabled once the “Edit” button has been selected. The survey can only be edited if the protocol used to enter the survey is available in the current database. (There is no reason why the protocol should not be available, since the protocols are included with the survey files that are imported, so this shouldn’t be a concern.)

### Deleting Surveys

Deleting surveys is easy. Select one or more surveys and press the “Delete” button located to the right of the grid. It does not make a difference whether the surveys are “Read-Only” or not (they are going away no matter what). There will be a warning message before the survey is deleted. It should also be noted that the deletion will not actually take place until the form is closed. This means that somebody who has mistakenly deleted a survey and then mistakenly presses the button to accept the deletion has one last window of opportunity to mend their ways. The user must terminate SGS 2 using the “Task Manager” (no other means of terminating SGS 2 other than a hard reboot of the computer will work).



## Survey Form

**Spawning Ground Survey2.2.3.0; DB: C:\IFWIS\SGSA\SGSA.mdb Using Protocol: Default**

File SpawningGroundSurvey Configuration Window Help

**Survey Entry; Protocol: Default**

**Survey**

**GENERAL INFORMATION**

**Species:** Chinook Salmon

**Agency:** Idaho Department of Fish and G...

**Coordinator:** DAV

**Collector:** B BARNETT

**Book Number:** CF49

**TRANSECT INFORMATION**

**Direction:** Both

**MFrom:** 6890 **MP167**

**MTo:** 8574 **MP168**

**Stream:** Crooked Fork Lochsa River

**CHOOSE TRANSECT**

**Commit**

**Delete**

**Cancel**

**SURVEY DATES AND TIMES**

**Start Date:** 9/ 8/2009 **Start Time:** 11:30

**End Date:** 9/ 8/2009 **End Time:** 14:30

**Total Redds in Survey:**

**New:** 7 **Previous:** 13

**Total Fish in Survey:**

**Live:** 1 **Carcass:** 6

**IMPORT WAYPOINTS**

**Datum:** WGS84

**SURVEY PROPERTIES**

**Redd Count:** ☒ **Carcass Survey:** ☒ **Trend Count:** ☐

**Sample Method:** Ground **Visibility:** Excellent

**Notes:**

LAST SURVEY, PULLED FLAGS

**Redds**

Redd Name	ReddID	Cou...	Coun...	Comments
MK0008	06a9eda1-d3ee-44b5-804b-4e27ccf69874	0	1	
MK0007	3c94eccc-bd45-44fb-abbf-a56c491aecd2	0	1	
BB0006	f36b35bc-df82-4358-9e6f-02c7f7f09bdb	0	1	
BB0005	76055008-7718-47af-8138-33cffa29bff6	0	1	
BB0004	2c42223d-2932-4d37-a127-195018a939d5	0	1	
BB0003	2d473547-e1ce-42d5-9268-e73904ba950a	0	1	

**Add / Edit**

**Delete**

Ready Tables Updated 5/5/2010 11:16:08 AM

### The Survey Form in General

The first step for adding a new survey should be to upload any waypoints that are available. This is done with the "Import Waypoints" button. There is also a datum pick list below this button, but this list should ONLY be used if waypoints are not imported. Quite frankly, it shouldn't be used then either. It is very strongly encouraged to only use the WGS84 datum, which is the default value in the datum combobox. This box is provided only for situations where a user has non-WGS84 data and can't do anything about it.

Entering waypoint information first is encouraged. Waypoints are extremely valuable to have when entering redd, fish, and even transect boundary data. Once the waypoint data has been entered, the order of data entered for all other items is not important.

Note: It is likely that people will find it convenient to enter redd and fish data after the waypoints are entered and leave the actual survey information, such as date and transect, to the very end of the process. There is no negative consequence of doing this, as all fields on the survey form are mandatory regardless of protocol (with the exception of the book number). The program will not let the data entry operator forget to enter survey information.

## Uploading Waypoints

The screenshot shows a software window titled "File Extractor". It has a blue header bar. Below the header, on the left, it says "File: Nothing Yet" and "File Status: No File". There is a button labeled "BROWSE FOR FILE". Below this is a section labeled "Header Rows:" with a large empty rectangular box. To the right of the "Header Rows" box is a "Delimiters" section with four radio buttons: "Comma" (selected), "Space (if you're crazy)", "Tab", and "Other:" followed by a small text input field. Below the "Header Rows" box is a section labeled "Data Rows:" with a large grey rectangular box. To the right of the "Data Rows" box is a "GPS Analysis" section. It contains several labels and buttons: "Datum: Indeterminate" with a "SET DATUM" button; "Wpt Name: None" with a "SET NAME FIELD" button; "Latitude Field: None" with a "SET LATITUDE FIELD" button; "Longitude Field: None" with a "SET LONGITUDE FIELD" button; "Description: None" with a "SET DESCRIPTION FIELD" button; and "Date Field: None" with a "SET DATE FIELD (Optional)" button. At the bottom of the "GPS Analysis" section is a button labeled "RE-CHECK FOR GPS". At the very bottom of the window are three buttons: "FINISHED", "CANCEL", and "MANAGE FIELDS".

The first step for uploading waypoints is to select the file to upload by using the "BROWSE FOR FILE" button. By default, the waypoint upload form is expecting a Comma-Separated Value (CSV) file. Most GPS receivers will download data to this type of file. However, if the file in question is not a CSV file, then other options are available. There is little cost in trying to open any incorrect text file if you don't know how the file is set up.



Above the “BROWSE FOR FILE” button are two labels. The top label shows the full path of the file selected (assuming it will fit in the available space), while the second label gives some information about the status of the file. This second label will either show “Functional” or “Bad File”.

Note: There are several things that can cause a bad file. The file processing function expects a text file with zero or more lines of data without separators (zero or more header lines without commas in a CSV file). If it finds the first line has separators, it expects all lines after to have the same number of fields. If this is not the case, you will see a “Bad File” status for the file. This can mean that either there is a line in the header that has a separator (a comma in the case of a CSV file) or that the rows of data below the header are not all the same length.

The easiest way to find the problem is to open the file in question with Excel (as a CSV file) and examine the data. There should be some number of rows of header information, a row of column names, and then one or more data rows. All of the data rows should have the same number of fields, though some fields may be empty. If the file is a bad file, a “Diagnostics” button will be displayed. Pressing the “Diagnostics” button should give more information about what was wrong with the file. For more information about “Diagnostics”, see the Philosophy section of this manual under the “Waypoint Files” heading.

If the file is functional, the form will try to determine which fields hold the “Waypoint Name”, “Latitude”, “Longitude”, and “Description” fields. All of these fields are likely to be present in any valid GPS file. However, if one field is not present in the file, it can be easily added by using the “MANAGE FIELDS” button. If the form chooses the wrong field for one of the items, click on the button beside that property (such as the “SET NAME” field to change which field holds the waypoint name) and you will see a list of all the fields to choose from.

If the form does not find a field that it recognizes as holding the Latitude or Longitude, it will look for recognizable UTM data in the file. If UTM data is found, and Latitude Longitude data is not found, then a label will show “LOOKS LIKE UTM DATA”. This will prompt a flashing “UTM TO LAT/LONG BUTTON” to appear on the form. If the “UTM” button is visible, it will be cycling through colors in a very noticeable fashion. In this case, and a few other cases, diagnostic information about each column can be found by clicking on the column heading. Further information about this diagnostic information can be found in the “Philosophy” section of this manual under the “Waypoint Files” heading.

Note: The form will also check the header information to attempt identifying the datum. If the form gets the wrong datum, or does not find anything useable, the user can choose the correct datum with the “SET DATUM” button.

The rows of data will be displayed in a grid in the bottom of the form. New rows cannot be added to this display, but values in the cells can be edited. Be warned, however, that there is virtually no validation possible on changes made to cells. Therefore, be careful manually entering valid data into these cells.

Note: Changes made on the form do not alter files that data is extracted from. Therefore, if a serious mistake is made while editing, simply use the “BROWSE FOR FILE” button to re-load the file.

The “MANAGE FIELDS” button takes the user to a form that allows strange and generally useless manipulations of data. On this form the user can add new columns, rename columns, fill empty cells in a column with values and add a “Date” field (which is made up of other fields in the file, other values, or some combination of both). None of these actions are likely to have any value when importing GPS values.

After you have browsed for and selected your file to upload click “Finished” to load the waypoint into the survey.

File: C:\ISS\Adult\Redds\Redd counts\2009\Powell\CSV files\SHOT\_109A\_9\_04\_09.CSV

File Status: **Functional**

BROWSE FOR FILE

Header Rows:  
Version 2  
Datum::WGS-84  
ZoneOffset::0

Delimiters:  
☒ Comma ☐ Space (if you're crazy)  
☐ Tab ☐ Other:

GPS Analysis  
Datum: **WGS84** SET DATUM  
Wpt Name: **Name** SET NAME FIELD  
Latitude Field: **Lat** SET LATITUDE FIELD  
Longitude Field: **Long** SET LONGITUDE FIELD  
Description: **Comment** SET DESCRIPTION FIELD  
Date Field: **Unknown** SET DATE FIELD (Optional)  
RE-CHECK FOR GPS

Data Rows:

	Type	Name	Lat	Long	Month#	Day#
▶	W	MK36	46.5993522	-114.6619347	9	5
	W	MK37	46.59401653	-114.6471922	9	5
	W	MKC03	46.59997741	-114.6616154	9	5
	W	MKC04	46.59423547	-114.6466668	9	5

FINISHED CANCEL MANAGE FIELDS

## General Information

General information is fairly self-explanatory. Explanation: Species and Agency are chosen from pick lists. Coordinator ID, Collector (surveyor), and Book Number are filled in. The correct format for entering both the Coordinator and Collector is <Last Name, First Name>.

Spawning Ground Survey2.2.3.0; DB: C:\IFWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

Survey Entry; Protocol: Default

Survey

**GENERAL INFORMATION**

Species: Chinook Salmon

Agency: Idaho Department of Fish and G...

Coordinator: DAV

Collector: B BARNETT

Book Number: CF49

**TRANSECT INFORMATION**

Direction: Both

MFrom: 6890 MP167

MTo: 8574 MP168

Stream: Crooked Fork Lochsa River

**SURVEY DATES AND TIMES**

Start Date: 9/ 8/2009 Start Time: 11:30

End Date: 9/ 8/2009 End Time: 14:30

**SURVEY PROPERTIES**

Redd Count: ☒ Carcass Survey: ☒ Trend Count: ☐

Sample Method: Ground Visibility: Excellent

**Notes:**

LAST SURVEY, PULLED FLAGS

**Redds**

Redd Name	ReddID	Cou...	Coun...	Comments
MK0008	06a9eda1-d3ee-44b5-804b-4e27cf69874	0	1	
MK0007	3c94eccc-bd45-44fb-abbf-a56c491aecd2	0	1	
BB0006	f36b35bc-df82-4358-9e6f-02c7f7f09bdb	0	1	
BB0005	76055008-7718-47af-8138-33cfa29bffa6	0	1	
BB0004	2c42223d-2932-4d37-a127-195018a939d5	0	1	
BB0003	2d473547-e1ce-42d5-9268-e73904ba950a	0	1	

Buttons: Commit, Delete, Cancel, IMPORT WAYPOINTS, Add / Edit, Delete

Status Bar: Ready, Tables Updated, 5/5/2010, 11:43:31 AM

## Transect Boundaries

Transect boundaries for surveys are set by selecting the "CHOOSE TRANSECT" button from the "Survey Form". When the form first opens, there is a list of every known transect. The transect names are generally cryptic, are often duplicated, and give no hint as to where they are located. Therefore, choosing a transect from this list can only be safely accomplished by the user knowing and choosing the transect by name.

For most users, the first step will be to type the name of a stream into the “Stream Name” combobox or selecting a stream name from the drop down list (see below). If there is only one stream with the desired name, then the “From” and “To” lists will be populated for that stream. However, Idaho has many streams that share a single name, just knowing the name of the stream is often not sufficient to select the correct stream.

Example: There are half a dozen Slate Creeks in Idaho, so if Slate Creek is selected as the stream name, then the grid is populated with all the Slate Creeks available in the database. In this case, the user will then need to select the correct stream based upon its parent stream name in order for the grid to populate the “From” and “To” lists.

Choosing the correct stream from the grid, if there is more than one stream with the same name, is not always easy. In general, the grid shows the river that the stream flows into (ParentName), but in some cases, such as Slate Creek, there is more than one stream with the same name flowing into the same river. In those cases, the Pmeasure field holds the distance in meters upstream from the mouth of the parent river where the two streams converge. For example, the Slate Creek near Riggins, Idaho has a Pmeasure of 105,144. This may or may not

be sufficient to determine which stream is the correct one. If it is not sufficient then the best option might be to look at first one, then the other, to see whether any recognizable landmarks show up in the From and To list (e.g. Slate Cr. Weir on one but not the other).

The landmarks in the From and To list are the items along the stream for which a location is known in the database. This list can be expanded over time as new landmarks are added to the list, but the only landmarks which should be considered suitable for addition would be those that are likely to remain stable over time, such as tributaries, large boulders (e.g. House Rock, Pestle Rock), highway bridges (e.g. Time Zone Bridge/SH95), and similarly permanent features. Snags, beaver dams, small islands, fences, and rock slides or cut banks are not good landmarks. Note, also, that the list of acknowledged landmarks is considerably more thorough on streams that have had many past surveys, while streams that are infrequently traveled have few, or no, recorded landmarks.

If the transect you are entering did not start or end at one of the known landmarks already recorded for that stream, then a waypoint can be used as a starting or ending point by clicking the NEW FROM or NEW TO button. This will bring up a form that will allow you to either enter a new waypoint directly, or, if you have already uploaded waypoints, you can select one of the uploaded waypoints to use as the endpoint of the transect. Waypoints entered in this fashion can be obtained from topographical maps, software, or similar sources, though waypoints recorded on a GPS unit from the location would be considerably more accurate, and therefore, more desirable.

## Survey Dates and Times

Start and End dates are chosen from a drop-down calendar and times are filled in. The default is the current date.

## Survey Properties

Select whether the survey was a redd count only, carcass survey only, or both. *If this was an IDFG index count for the Spawning Ground Report, then select the "Trend count" box.* This is a critical point and should probably be read again. Sample Method and Visibility are chosen from pick lists.

Spawning Ground Survey 2.2.3.0; DB: C:\IFWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

Survey Entry; Protocol: Default

Survey

**GENERAL INFORMATION**

Species: Chinook Salmon  
Agency: Idaho Department of Fish and Game  
Coordinator: DAV  
Collector: B BARNETT  
Book Number: CF49

**TRANSECT INFORMATION**

Direction: Both  
MFrom: 6890 MP167  
MTo: 8574 MP168  
Stream: Crooked Fork Lochsa River

**SURVEY DATES AND TIMES**

Start Date: 9/ 8/2009 Start Time: 11:30  
End Date: 9/ 8/2009 End Time: 14:30

**SURVEY PROPERTIES**

Redd Count: ☒ Carcass Survey: ☒ Trend Count: ☐  
Sample Method: Ground Visibility: Excellent

**Notes:**

LAST SURVEY, PULLED FLAGS

**Redds**

Redd Name	ReddID	Cou...	Coun...	Comments
MK0008	06a9eda1-d3ee-44b5-804b-4e27ccf69874	0	1	
MK0007	3c94eccc-bd45-44fb-abbf-a56c491aecd2	0	1	
BB0006	f36b35bc-df82-4358-9e6f-02c7f7f09bdb	0	1	
BB0005	76055008-7718-47af-8138-33cfa29bff6	0	1	
BB0004	2c42223d-2932-4d37-a127-195018a939d5	0	1	
BB0003	2d473547-e1ce-42d5-9268-e73904ba950a	0	1	

Ready Tables Updated 5/5/2010 11:43:31 AM

Spawning Ground Survey 2.2.3.0; DB: C:\IFWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

### Survey Entry; Protocol: Default

#### Survey

#### GENERAL INFORMATION

Species: Chinook Salmon

Agency: Idaho Department of Fish and G.

Coordinator: DAV

Collector: B BARNETT

Book Number: CF49

#### TRANSECT INFORMATION

Direction: Both

MFrom: 6890 MP167

MTo: 8574 MP168

Stream: Crooked Fork Lochsa River

**CHOOSE TRANSECT**

Commit

Delete

Cancel

#### SURVEY DATES AND TIMES

Start Date: 9/ 8/2009 Start Time: 11:30

End Date: 9/ 8/2009 End Time: 14:30

Total Redds in Survey:

New: 7 Previous: 13

Total Fish in Survey:

Live: 1 Carcass: 6

IMPORT WAYPOINTS

Datum: WGS84

#### SURVEY PROPERTIES

Redd Count: ☒ Carcass Survey: ☒ Trend Count: ☐

Sample Method: Ground Visibility: Excellent

#### Notes:

LAST SURVEY, PULLED FLAGS

Redds Fish Waypoints

#### Redds

Redd Name	ReddID	Cou...	Coun...	Comments
MK0008	06a9eda1d3ee-44b5-804b-4e27ccf69874	0	1	
MK0007	3c94eccc-bd45-44fb-abbf-a56c491aecd2	0	1	
BB0006	f36b35bc-df82-4358-9e6f-02c7f7f09bdb	0	1	
BB0005	76055008-7718-47af-8138-33cfa29bff6	0	1	
BB0004	2d42223d-2932-4d37-a127-195018a939d5	0	1	
BB0003	2d473547-e1ce-42d5-9268-e73904ba950a	0	1	

Add / Edit

Delete

Ready Tables Updated 5/5/2010 12:48:32 PM

The Redd, Fish, and Waypoint forms can be opened by selecting the appropriate tab at the bottom of the Survey form and then clicking Add/Edit.



## The Redd Form

**Redd Entry and Management**

**Current Redds**

	Redd	CountNew	CountPrevious	Comments
▶	MK0008	0	1	
	MK0007	0	1	
	BB0006	0	1	
	BB0005	0	1	
	BB0004	0	1	
	BB0003	0	1	

**FINISHED WITH FORM**

**New Redds:** 7  
**Previous Redds:** 13  
**Total Redds:** 20  
**Total Rows:** 20

REMOVE

Choose Redds from Waypoints | Enter Redds Directly | Choose Previous Redds from List

**Current Waypoints**

	WaypointName	Description	Latitude	Longitude
▶	AH0014		46.56045129	-114.65015204
	AH0015		46.56208861	-114.64768533
	AH0016		46.56357455	-114.64477605
	AH0017		46.56764824	-114.63646498
	AH0018		46.56770574	-114.63672976
	BB0001		46.56336391	-114.64546613
	BB0015		46.56177227	-114.64807441
	BB0016		46.56337954	-114.64503900

ADD AS NEW REDD

**Number of Redds at Waypoint**  
 1

ADD AS PREVIOUS REDD

The Redd form is primarily intended for two types of entry: Selecting waypoints from a list and entering a series of consecutive redd names when waypoints are not available. A third option is available on the Redd form, which is a semi-quicker means of entering Redds that were identified on a previous survey of the same transect. This third option was added only to facilitate a relatively rare type of entry, and can often be ignored, though it will be covered here.

Redds cannot be directly entered into the Current Redd grid because validation under those circumstances would be problematic. However, once reds have been entered into the grid from one of the three tabs at the bottom half of the form, then any field can be edited. Therefore, different people will have different means of entering reds.

## Choose Redds from Waypoints

If waypoints have been uploaded for the survey, or entered directly, then all of the waypoints entered for the current survey will show up in the grid on the Choose Redds from Waypoints tab. A single waypoint, or a range of waypoints can be selected with the use of the shift or ctrl keys. To select multiple contiguous rows in the waypoints table, hold down the Shift key while making your selection. To select multiple rows that are not contiguous, hold down the Ctrl key and select every row that is desired. You can sort the waypoints by clicking on the column headers (e.g. WaypointName or Description).

By default, the number of reds associated with each waypoint will be one, but that can be changed to any other integer. When either the ADD AS NEW REDD or ADD AS PREVIOUS REDD buttons are pressed, all of the selected waypoints will be added as reds to the Current Redd grid at the top of the form. Note that once reds are in the Current Redd grid, every piece of them can be edited in that grid. For example, you can change the name of the redd or remove the redd by highlighting the redd and clicking on the "Remove" button.

The reds that are entered from a waypoint will have the same name as the waypoint by default. Editing the redd name will not affect the waypoint name, though the redd will still be related to the waypoint. This could cause a bit of confusion, as the redd name will be associated with a waypoint that has a different name. To edit the waypoint name, it would be necessary to make the changes by selecting the waypoint on the Survey form and edit it using the Waypoint form.

**Redd Entry and Management**

**Current Redds**

Redd	CountNew	CountPrevious	Comments
MK0008	0	1	
MK0007	0	1	
BB0006	0	1	
BB0005	0	1	
BB0004	0	1	
BB0003	0	1	

**FINISHED WITH FORM**

**New Redds:** 7  
**Previous Redds:** 13  
**Total Redds:** 20  
**Total Rows:** 20

**REMOVE**

**Choose Redds from Waypoints** | Enter Redds Directly | Choose Previous Redds from List

**Current Waypoints**

WaypointName	Description	Latitude	Longitude
AH0014		46.56045129	-114.65015204
AH0015		46.56208861	-114.64768533
AH0016		46.56357455	-114.64477605
AH0017		46.56764824	-114.63646498
AH0018		46.56770574	-114.63672976
BB0001		46.56336391	-114.64546613
BB0015		46.56177227	-114.64807441
BB0016		46.56237054	-114.64500000

**ADD AS NEW REDD**

**Number of Redds at Waypoint**  
1

**ADD AS PREVIOUS REDD**

## Enter Redds Directly

**Redd Entry and Management**

**Current Redds**

Redd	CountNew	CountPrevious	Comments
MK0008	0	1	
MK0007	0	1	
BB0006	0	1	
BB0005	0	1	
BB0004	0	1	
BB0003	0	1	

**FINISHED WITH FORM**

New Redds: 7  
 Previous Redds: 13  
 Total Redds: 20  
 Total Rows: 20

REMOVE

Choose Redds from Waypoints | **Enter Redds Directly** | Choose Previous Redds from List

**Redd Name Manager**

Initials: ☐ Initials First ☐ Number First

First Number: 1

Last Number: 1

For singleton reds, only enter the first number. As long as the first number is equal to, or higher than the last number, only a single redd will be entered.

ADD AS NEW REDDS

ADD AS PREVIOUS REDDS

Comment on ALL Redds created Characters:

Some reds may not have waypoints associated with them. Additionally, a survey may not find any reds. This tab was added as a means to rapidly enter reds directly into the Current Redds grid based on the assumption that reds will be named consistently with a name that either starts or ends with a set of initials, and is continuously numbered. For reds that do not follow this naming convention, it is still possible to enter them, but the tab will not be as convenient.

The first step is to enter the initials that the reds will have, and indicate whether the initials come first or last. The use of the word 'initials' is a bit misleading, since there is no particular length limit on this piece, nor does it even have to be letters. All that the initials really are is a constant portion of the name that will be repeated for every redd name being entered. By convention, redd names, at the time of this writing, are all initials followed by a number, but if that convention changes, this tab will allow the entry of any constant followed by a number.

The next step is to enter the first and last number of the sequence. Therefore, if you are entering BB1 through BB21, you would set BB as the initials, select Initials First, set the first number to 1, and the last number to 21, then choose whether to enter these as new (Add as New Redds) or previous reds (and maybe even choose the number of reds, though generally

leaving this at 1 is correct). This would enter BB0001, BB0002, BB0003, etc. on up to BB0021. Note that the numbers are padded out with zeroes based on the setting in the protocol. By default, all numbers are padded out to four digits.

If you only want to enter a single redd or a count of zero redds, just make sure that the first number is equal to, or larger than, the last number, which is true by default, and only a single redd will be entered. Therefore, while the tab is set up so that consecutively numbered redds are quick to enter, if the redds are not consecutive, you can still enter them using similar means. After adding the single redd record, you can then edit the CountNew value of 1 to 0.

### Choose Previous Redds from List

**Redd Entry and Management**

**Current Redds**

Redd	CountNew	CountPrevious	Comments
MK0008	0	1	
MK0007	0	1	
BB0006	0	1	
BB0005	0	1	
BB0004	0	1	
BB0003	0	1	

**FINISHED WITH FORM**

**New Redds:** 7  
**Previous Redds:** 13  
**Total Redds:** 20  
**Total Rows:** 20

**REMOVE**

Choose Redds from Waypoints | Enter Redds Directly | **Choose Previous Redds from List**

**Known Previous Redds (from database)**

StartDate	MFrom	MTo	Redd
8/14/8/14/2009 1:00 AM		8574	b7c6d
8/14/2009 1:00 ...	6890	8574	70845
8/22/2009 1:00 ...	6890	8574	097c2
8/22/2009 1:00 ...	6890	8574	d2d94
8/22/2009 1:00 ...	6890	8574	ffd554
8/22/2009 1:00 ...	6890	8574	ba328
8/22/2009 1:00 ...	6890	8574	03915

THESE ARE PREVIOUS REDDS FOR THIS SURVEY

As waypoints are uploaded and designated as redds through a series of survey entries, they are stored in the database. When entering a new survey and selecting “Choose Previous Redds from List” all of the previous redds counted within those transect boundaries for that year will be shown on the grid. If you did not record waypoints for or enter directly the previous redds for that survey you can select them from the grid using the shift and control keys and clicking the “These are Previous Redds for This Survey” button. You can also use this function in conjunction with the other two methods of entering redds. For example, if you were able to find a previous redd and have the name but were unable to get a waypoint on a subsequent survey. Once you have entered your redds click on the “Finished With Form” button to lock and load them.

## Fish Form

Spawning Ground Survey 2.2.4.0; D8: C:\FWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

Survey Entry; Protocol: Default

Survey

**GENERAL INFORMATION**

Species: Chinook Salmon  
 Agency: Idaho Department of Fish and Game  
 Coordinator: DAV  
 Collector: B BARNETT  
 Book Number: CF49

**TRANSECT INFORMATION**

Direction: Both  
 MFrom: 6890 MP167  
 MTo: 8574 MP168  
 Stream: Crooked Fork Lochsa River

**SURVEY DATES AND TIMES**

Start Date: 9/ 8/2009 Start Time: 11:30  
 End Date: 9/ 8/2009 End Time: 14:30

Total Redds in Survey:  
 New: 7 Previous: 13  
 Total Fish in Survey:  
 Live: 1 Carcass: 6

**SURVEY PROPERTIES**

Redd Count: ☒ Carcass Survey: ☒ Trend Count: ☐  
 Sample Method: Ground Visibility: Excellent

Notes: LAST SURVEY, PULLED FLAGS

Redds Fish Waypoints

**Fish**

Age	NFish	Car...	Sex	For...	ME...	Tot...	Per...	Car...	Notes	Sex...	Wa...	Sex	Car...	Sex...	Ag...	Descr...
4	1	<input type="checkbox"/>	2							-98		Female	N/A		1	Estima...
4	1	<input checked="" type="checkbox"/>	2	76	65		100	4		1 C0006	Female	Poor	Inte...		2	Estima...
5	1	<input checked="" type="checkbox"/>	1	88	73			4		1 C0007	Male	Poor	Inte...		2	Estima...
4	1	<input checked="" type="checkbox"/>	2	68	56		100	2		1 C0008	Female	Good	Inte...		2	Estima...
4	1	<input checked="" type="checkbox"/>	2	75	63		100	4		1 C0009	Female	Poor	Inte...		2	Estima...
4	1	<input checked="" type="checkbox"/>	2	70	59		100	2		1 C0010	Female	Good	Inte...		2	Estima...

Ready Tables Updated 5/6/2010 12:18:12 PM

Fish Entry; Protocol: Default

**Fish**

**Type and Quantity**

NFish: 1 Carcass: ☐  
 Sex: Unknown

**Carcass Information**

**Size Measure**

Fork Length: UNK  
 MEHPLength: UNK  
 Total Length: UNK

**Percent Spawned:** 0 100 UNK

**Carcass Condition:**

**Notes:** Live adult fish observation, unknown sex and marks.

Waypoint: None

Delete OK  
 << LAST ADD NEW

**Marks**

Marks Waypoints Samples Taken

Identifier Type	Identifier Pl...	Presence	Identifier	Fore Color	Back Color	Frequency	Fish
<Unknown>		Yes					

Manage  
 No Marks  
 Marks Unknown  
☐ Add Clip

**Fish Entry; Protocol: Default**

**Fish**

**Type and Quantity**  
 NFish: 1 Carcass: ☒  
 Sex: Female  
☒ Internal Exam  
☐ Physiological Characteristics/Unknown  
 Aging Method: Estimate based on measured  
 Estimated Total Age: 4 UNK

**Carcass Information**  
**Size Measure**  
 Fork Length: 76 UNK  
 MEHPLength: 65 UNK  
 Total Length: UNK  
 Percent Spawmed: 100 0 100 UNK  
 Carcass Condition: Poor

**Notes:**

Waypoint: None

Delete OK  
 << LAST ADD NEW

Marks Waypoints Samples Taken

**Marks**

Identifier Type	Identifier Pl...	Presence	Identifier	Fore Color	Back Color	Frequency	Fish
Clip	Adipose Fin	Yes					
Punch	Right Opercle	No					
Coded-Wire		No					

Manage  
 No Marks  
 Marks Unknown  
☒ Ad Clip

"Internal Exam" is most commonly used for determining sex of a carcass while "Physiological Characteristics/Unknown" is used for live fish. Aging Method has several options available from a pick list, including based on fin ray, based on scale sample, based on tag/mark return, based on estimate of length (live fish), based on measured length, unknown, and <null>. Carcass Information is self-explanatory. Explanation: FL, ML, and TL have the option of selecting the Unknown button to the right, if you do not know. Carcass Condition relates the quality of the DNA Sample or prespawn mort analysis. Any notes pertaining to that specific fish would be entered here (i.e. skeleton, head missing, etc).

## Marks

The marks tab allows the user to enter and review any marks found on the fish. If the current protocol requires that the marks be addressed, which will be shown by the marks tab being red, then the user must interact with this tab, though there are many ways to do so. The easiest and most recommended action is to press the No Marks button. This is useful even if there are marks on the fish, as pressing the button will populate the marks list with any mandatory marks, all of which will be set to their default values. The user can then press the MANAGE marks button to go into the visual fish form and select the marks that were present, or toggle the presence of any of the other marks. Thus, the NO MARKS button is a quick way to enter all the mandatory marks. Toggling the Ad Clip checkbox is another way to address the

marks. The Ad Clip toggle was added because that particular clip plays a special roll in Idaho salmon and steelhead management, and the user group felt that it would be advantageous to provide an especially quick means to address that particular mark.

The Marks Unknown button provides a quick way for the user to show that marks were not overlooked, just unknown, without having to open the Visual Fish form and deal with each possible mark individually. This is useful when using the default protocol or any protocol where no marks are set as mandatory, yet you do not want it to seem like the data entry person just overlooked the marks. It is also useful for those live fish observations where you only get a glimpse, and marks cannot be determined.

**Fish Entry; Protocol: Default**

**Fish**

**Type and Quantity**  
 NFish: 1  
 Sex: Unknown

**Carcass Information**  
**Size Measure**  
 Fork Length: UNK  
 MEHPLength: UNK  
 Total Length: UNK

**Notes:**  
 Live adult fish observation, unknown sex and marks.

**Waypoint** None

**Aging Method:** Estimate based on estimate  
**Estimated Total Age:** 4 UNK

**Percent Spawmed:** 0 100 UNK  
**Carcass Condition:**

**Marks** | Waypoints | Samples Taken

Identifier Type	Identifier Pl...	Presence	Identifier	Fore Color	Back Color	Frequency	Fish
<Unknown>		Yes					

**Manage**  
**No Marks**  
**Marks Unknown**  
☐ Ad Clip



All marks can be addressed using the MANAGE marks button, which brings up the Visual Fish form, click on any mark that you want to record. When a mark is first selected, the mark is recorded as being present, but this can be changed to Absent or Unknown by changing the radio buttons at the bottom of the form. Choosing the radio button for None is the same as un-selecting the mark.

The VisualFish form displays two fish diagrams, FISH LEFT and FISH RIGHT, with various mark locations labeled. The labels include: Elastomer, VI, Opercle Punch, Dorsal Scar, Dorsal Punch, Anterior Freeze Brand, Posterior Freeze Brand, Anchor Tag (Floy), Ad Clip, UC, C, LC, Caudal Punch, Jaw Tag, Maxillary Clip, Pectoral Clip, Ventral Clip, PIT Tag, Anal Fin Mark, and Anal Fin Clip. The form also includes a Mark Details section with a Mark Type dropdown (CWT), a Mandatory status selector (Present, Absent, Unknown, None), a Number field, and navigation buttons (LAST MARK, NEXT MARK, FINISHED, CANCEL).

Many marks, if they are present, require further information, such as PIT tags requiring numbers, and Elastomer tags requiring a color. When a mark is selected, any supporting information that can be filled in should be filled in below the fish pictures. If the presence of the mark is anything other than Present, then anything entered or selected for that mark is ignored.

At any time, the user can review the marks using the NEXT and LAST buttons to examine the different mark. The current mark being displayed will be flashing and will be listed to the left. When the user clicks the FINISHED button, if there are any present marks that do not have all the information necessary to be valid, the user will be prompted to see and correct those deficiencies. If all is well, then the form exits. **Note: if an AD Clip is present then the AD Fin is absent and vice-versa. The mark is Ad Clip, not Ad Fin.**

## Samples Taken

**Fish Entry; Protocol: Default**

**Fish**

**Type and Quantity**  
 NFish: 1 Carcass: ☒  
 Sex: Female  
☒ Internal Exam  
☐ Physiological Characteristics/Unknown  
 Aging Method: Estimate based on measured  
 Estimated Total Age: 4 UNK

**Carcass Information**  
**Size Measure**  
 Fork Length: 76 UNK  
 MEHPLength: 65 UNK  
 Total Length: UNK  
 Percent Spawmed: 100 0 100 UNK  
 Carcass Condition: Poor

**Notes:**

Waypoint C0006

Delete OK

<< LAST NEXT >>

**Samples Taken**

Sample Number: 09-2546

Sample Type:

- Snout
- DNA
- Aging Fin
- Scale
- OTO
- Unknown

Sample Type	Sample Number	Comments
Snout	09ZG251	
DNA	09-2546	
Aging Fin	09-2546	
Scale	09-2546	
OTO	09-2546	

Add Delete Could Not Sample Did Not Sample

To enter a sample, either select one or more sample types then enter in a sample number, or enter the number first and select the sample types later. If you defined sample number prefixes in the protocol then when you select the Sample Type the prefix will automatically be added to the Sample Number box. Add the suffix and click ADD and it will send it to the grid (load it). The form is designed this way because most samples have the same number. Therefore, to enter the same sample number for three different samples, it is only necessary to enter the sample number one time, and select all three sample types. Note, however, that any comment that was entered will be applied to ALL selected sample types. Therefore, if there are three sample types with the same sample number, and only one of them has a comment, then enter the sample number, select the sample types, click the ADD button. This will add the three samples to the grid. At that point, you can edit the one that has a comment.

Samples cannot be edited directly in the grid. Therefore, to edit a sample, it must be loaded back into the controls on the sample tab. Do this by either selecting the sample in the grid, or double clicking on the sample in the grid. This will populate the Sample Number, Sample Type, and Comment fields, so that they can be edited. Note, also, that the ADD button changes to an UPDATE button.

**Fish Entry; Protocol: Default**

**Fish**

<b>Type and Quantity</b> <b>NFish:</b> 1 <b>Sex:</b> Female <input checked="" type="radio"/> Internal Exam <input type="radio"/> Physiological Characteristics/Unknown <b>Aging Method:</b> Estimate based on measured <b>Estimated Total Age:</b> 4	<b>Carcass Information</b> <b>Size Measure</b> <b>Fork Length:</b> 76 <b>MEHPLength:</b> 65 <b>Total Length:</b> <b>Percent Spawned:</b> 100 <b>Carcass Condition:</b> Poor	<b>Notes:</b>  <b>Waypoint</b> C0006 Delete OK << LAST NEXT >>
--	---	--

Marks | Waypoints | **Samples Taken**

**Sample Number:** 09-2546  
**Sample Type:** Could Not Take  
Did Not Take

☐ Snout  
☐ DNA  
☐ Aging Fin  
☒ Scale  
☐ OTO  
☐ Unknown

Sample Type	Sample Number	Comments
Scale	09-2546	
OTO	09-2546	

Update  
Delete  
Could Not Sample  
Did Not Sample

To delete a sample select the sample in the grid and click on the delete button. There is also the option, unless you made it mandatory, to designate the sample as “Could Not Sample” or “Did not Sample”, which might be the case if a snout was missing from the carcass, among other things. A comment in this instance would be appropriate.

## Fish Waypoints

**Fish Entry; Protocol: Default**

**Fish**

**Type and Quantity**  
 NFish: 1 Carcass: ☒  
 Sex: Male  
☒ Internal Exam  
☐ Physiological Characteristics/Unknown  
 Aging Method: Estimate based on measured  
 Estimated Total Age: 5 UNK

**Carcass Information**  
**Size Measure**  
 Fork Length: 88 UNK  
 MEHPLength: 73 UNK  
 Total Length: UNK  
 Percent Spawned: 0 100 UNK  
 Carcass Condition: Poor

**Notes:**

Waypoint C0007

Delete OK  
 << LAST NEXT >>

Marks Waypoints Samples Taken

Select the waypoint (if any) for the current fish

WaypointName	Description	Latitude	Longitude
BB0019		46.5645093	-114.64146302
BB0020		46.56635148	-114.63864871
BB0021		46.56597052	-114.63842575
C0006		46.56162241	-114.64827432
C0007		46.56179775	-114.64813133
C0008		46.56243143	-114.64721862
C0009		46.56354513	-114.64501494
C0010		46.56511305	-114.6405338
C0011		46.56744607	-114.6369502
MK0007		46.56367455	-114.64477605
MK0008		46.56357455	-114.64477605

**Waypoint Search:**

Add Carcass/Fish Waypoint  
 Enter a name for this waypoint here:  
 Latitude: Longitude:  
 Description:  
 ADD WAYPOINT  
 CLEAR CURRENT SELECTION

When you select the Waypoint tab on the Fish Form a list of the waypoints you uploaded for the survey shows in the grid, just as it did for redds. Select the waypoint that is associated with this fish and click "Add Waypoint". When viewing this fish in the future the waypoint will be shown here. This can also be done manually to the right or you can clear the current selection.

Now that you have entered the marks, waypoint, and samples for that fish (yes, that was just one fish) click the "Next" button to enter or edit the next fish. When all the fish are entered click the "OK" button. If it is absolutely necessary to delete a fish just click the delete button. It seems like a long process but once you have done a few you will be amazed at the ease with which you can enter data.

Clicking OK will lock the fish to the survey, close the fish form, and take you back to the survey form.

## The Waypoint Form

**Spawning Ground Survey 2.3.0** DB: C:\IFWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

**STRM\_Survey\_Waypoints**

Waypoint Name: AH0014

Latitude: 46.56045129

Longitude: -114.65015204

Description:

OK

**Survey**

Transect Information: Both **CHOOSE TRANSECT**

6890 MP167

8574 MP168

Crooked Fork Lochsa River

Total Redds in Survey: New: 7 Previous: 13

Total Fish in Survey: Live: 1 Carcass: 6

Datum: WGS84

IMPORT WAYPOINTS

Notes: LAST SURVEY, PULLED FLAGS

Redd Count: ☒ Carcass Survey: ☒ Trend Count: ☐

Sample Method: Ground Visibility: Excellent

Waypoints

Waypoint Name	Description	Latitude	Longitude
AH0014		46.56045129	-114.65015204
AH0015		46.56208861	-114.64768533
AH0016		46.56357455	-114.64477605
AH0017		46.56764824	-114.63646498
AH0018		46.56770574	-114.63672076

Add Edit Delete Clear

Ready Tables Updated 5/5/2010 1:09:18 PM

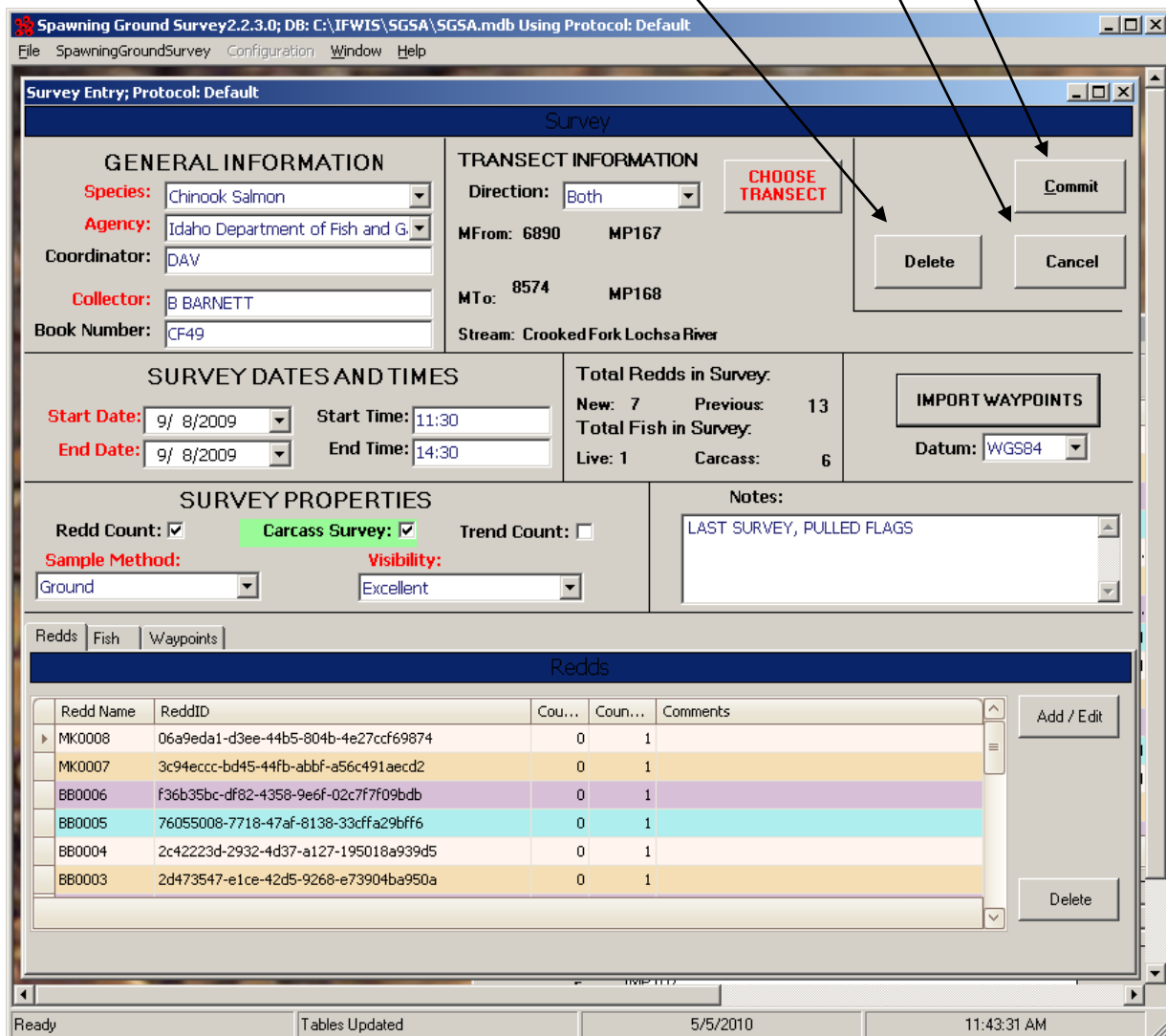
The waypoint form is the only place where editing waypoints directly, is allowed. The form can also be used to enter a new waypoint, though that can also be done in the Fish form, and, to a lesser extent, in the Transect form. Entering waypoints by hand is a difficult subject, and is not encouraged. The only necessary items are a name, latitude, and longitude. The range of acceptable latitudes and longitudes is restricted to just those that are reasonable for Idaho and eastern WA and OR. However, that is a largely inadequate limitation, since it is quite hard to determine how many decimal places are reasonable for either latitude or longitude. Enter as many as are available.

The name of a waypoint should be entered under Waypoint Name, but there is no convention for waypoint names that is being enforced. Technically, it would be possible to pad the waypoint names the same as they are padded if a waypoint file is imported. However, since the user would have to type in each waypoint name explicitly on this form, it would probably be jarring to have the name that they have just typed in suddenly morph before their eyes.

Therefore, the rule should be that the waypoint name should be as unique as necessary, but there are no other constraints.

The description field is an optional field that is added to provide more descriptive information about a waypoint than the name alone would provide. A description can be quite lengthy, but the user should keep in mind that, while the whole description can be viewed as needed, it will be more difficult to view a long description than a short one.

After all the redd, fish, and waypoint data have been entered click “Commit” to commit the survey to the database. If you are scared of commitment click “Cancel”. If you feel you have committed in the past and shouldn’t have click “Delete”.



Spawning Ground Survey 2.2.3.0; DB: C:\IFWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

Survey Entry; Protocol: Default

Survey

**GENERAL INFORMATION**

Species: Chinook Salmon  
Agency: Idaho Department of Fish and Game  
Coordinator: DAV  
Collector: B BARNETT  
Book Number: CF49

**TRANSECT INFORMATION**

Direction: Both  
MFrom: 6890 MP167  
MTo: 8574 MP168  
Stream: Crooked Fork Lochsa River

**SURVEY DATES AND TIMES**

Start Date: 9/ 8/2009 Start Time: 11:30  
End Date: 9/ 8/2009 End Time: 14:30

**SURVEY PROPERTIES**

Redd Count: ☒ Carcass Survey: ☒ Trend Count: ☐  
Sample Method: Ground Visibility: Excellent

**Notes:**

LAST SURVEY, PULLED FLAGS

**Redds**

Redd Name	ReddID	Cou...	Coun...	Comments
MK0008	06a9eda1-d3ee-44b5-804b-4e27ccf69874	0	1	
MK0007	3c94eccc-bd45-44fb-abbf-a56c491aecd2	0	1	
BB0006	f36b35bc-df82-4358-9e6f-02c7f7f09bdb	0	1	
BB0005	76055008-7718-47af-8138-33cfa29bff6	0	1	
BB0004	2c42223d-2932-4d37-a127-195018a939d5	0	1	
BB0003	2d473547-e1ce-42d5-9268-e73904ba950a	0	1	

Ready Tables Updated 5/5/2010 11:43:31 AM

## Managing Data

### Make Field Version

It is useful to have a version of the database in the field where the data can be entered and transferred (exported, imported) to another database (coordinator version) but not uploaded to the server. That is the purpose of this function. If you do not make it a field version, it is essentially a coordinator version and can import from field versions, other coordinator versions, and upload to the server. Field versions cannot import data. This way you can import and contain all your field version data (multiple sites) on one coordinator version for checking, editing, and uploading to the server. If you would like to view another coordinators data you can import from them but only in Read-Only format so that you may not edit or upload another coordinator's data to the server. See the Data Flow Diagrams at the end of this document for illustrations of this set up.

### Exporting Data

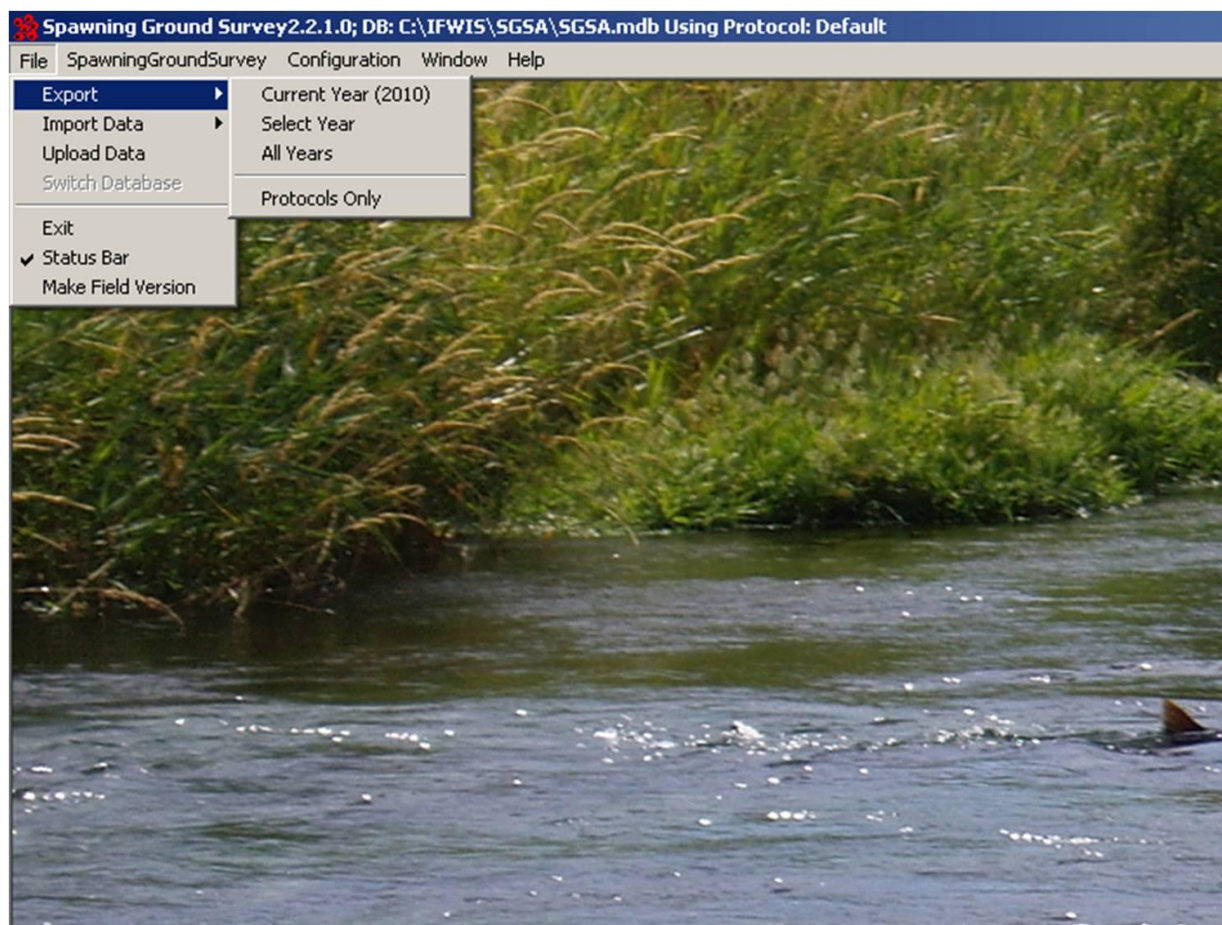
There are two types of data exports that are available options. The first type is to export surveys, which can be done by exporting all the data from the database or just one year. For this type of export the user will be asked for the name of the file to save the export to. The user can choose the name, but the files will all be given the same SGS suffix. Once a name has been chosen, the export may take several seconds depending on the amount of data in the file. It then saves the export XML into the IFWIS/SGSA directory. This file can then be attached to an email and sent to the coordinator for import into the coordinator version of the database.

The second type of data export is an export of all of the protocols in the current database. The process is the same simple process that is used for exporting the whole database. However, this export will have the file extension PTC rather than SGS. This option was added to allow one user to share a set of protocols with other users of the program. This also makes it possible to export a single protocol from the Protocols form accessed via the "Manage Protocols" menu item under the "Configurations" menu.

Note: Due to the need for protocols in order for the surveys to work, the protocols are included with all survey exports. Therefore, if you are exporting the surveys there is no need to export the protocols as it will have already been done.



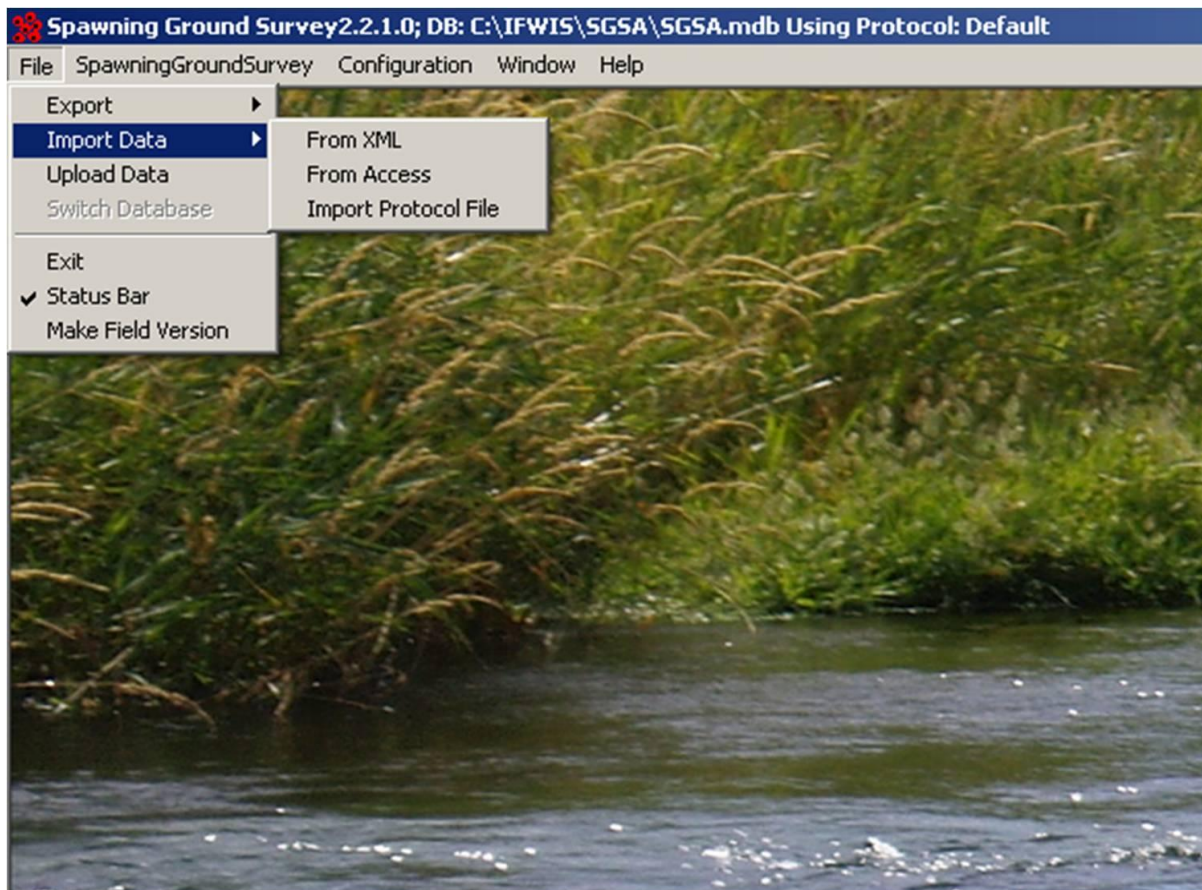
Both the full DB and protocol files are compressed XML files that cannot easily be read by any other program. The file extension used for the full DB file is SGS, while the file extension for a protocol file, whether it was created from this menu or from the Protocols form, is PTC.



## Importing Data

There are three options for importing data. The first option is to import a compressed SGS file exported from another version of the program. The second option is to directly import data from an alternate MDB database (only SGS 2 databases will work at this time). The third option is to import a compressed PTC file containing one or more protocols. With either option you will browse to the directory where you saved the XML file to select it for import.

Note: When importing either an SGS file or a PTC file, be sure to import the correct file type. By default, the user will only see files of the correct type, though you also have the option of seeing files of all types. Attempting to import an improper file will result in a dreary error message. It is also important that a valid SGS 2 database is used as the data importing source. A check is performed right away on the database selected and any invalid databases will be excluded.



None of the import options should be expected to be very fast. Especially in the case of importing a large SGS file, the importing process can take several seconds. When an import is taking place, the user can enjoy the multi-hued “wait form” that is displayed while also snacking on a tasty can of smoked almonds. The colors change every time a step has been reached; so, as long as the colors are cycling by and there are a few almonds left in the can, things are still going ok.

When an SGS file is imported, the file may be slightly altered. An imported survey file set to use a default protocol will be changed to reflect the default protocol of the current database. Since all default protocols are identical in every way, except the primary key, this is an insignificant change.

The SGS file will contain a complete set of protocols from the source database which will be compared against the protocols in the target database. If there is an existing protocol that is equivalent to the one being imported, (identical in every way except the name and description may be different) then the user will be asked whether or not to keep both protocols or change the surveys to use the local protocol. Always keep both protocols unless there is good reason to do otherwise. There is no harm done by having two protocols with the same settings and the identifying information in the protocol name may be useful in the future.

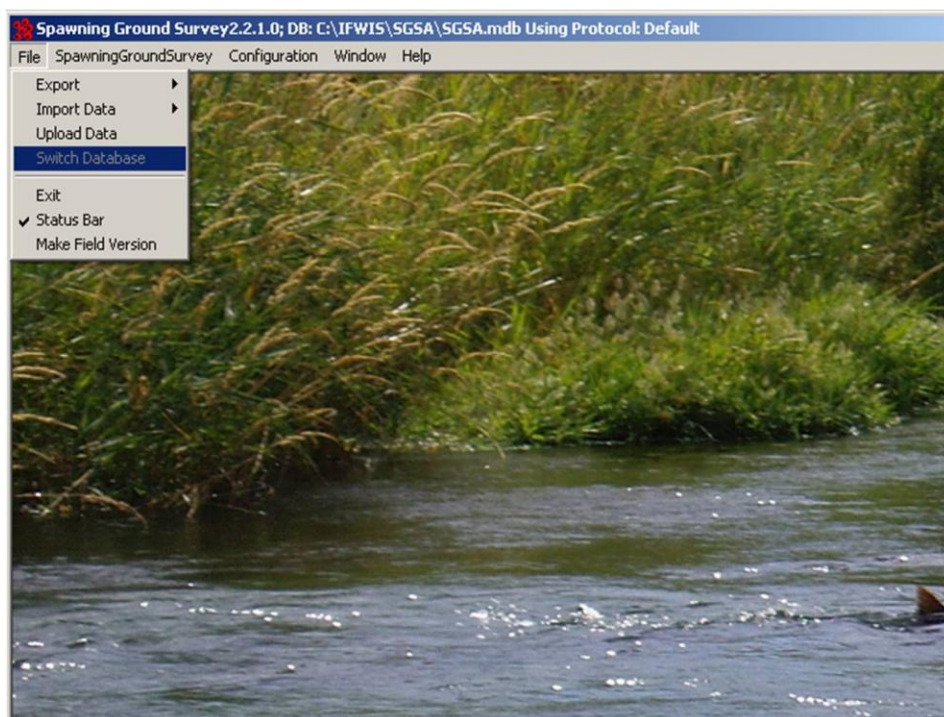


## Switching Databases

There may come a time when the user will want to use a different database to enter certain data or receive a different database to enter/edit data into. Therefore, the option to switch databases has been added to SGS 2 under the “File” menu of the main form. Selecting this menu item will open a dialog box where the user may choose another database.

Note: You can ONLY access the “Switch Database” menu item BEFORE you have chosen either the “Configuration” or the “SpawningGroundSurvey” menu item. Once either of these two menu items has been selected, the menu option for switching databases will be disabled. The only way to switch databases after this point will be by closing the SGS program and re-starting.

Be aware that the database chosen will be checked and verified for all tables and fields necessary to be a valid SGS 2 database. Also note that after switching databases, when the SGS 2 program is closed and reopened, the database that will be initially connected depends entirely on the configuration of the computer. If the user has the default database in the “application folder”, that will be the database used. If the database is not in the “application folder”, then the last database used will be the new one opened. **The database in current use is displayed in the title bar of the main form.**

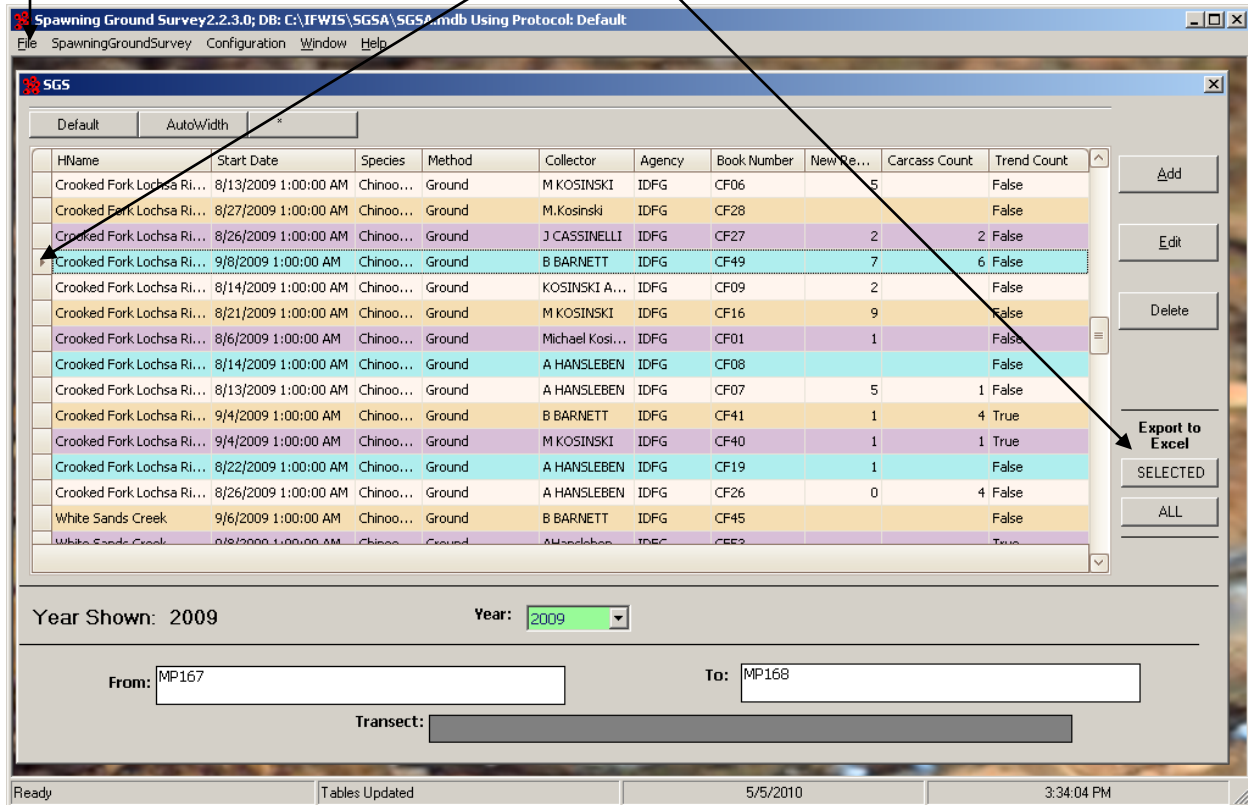


## Uploading to the Server

To upload data to the common server select File and Upload.

## Exporting to Excel

Data can be exported to excel from the SGS page. Various surveys can be selected for export by using the control or shift function when selecting the surveys. All surveys can be exported as well.



This will separate the data in excel to a redd worksheet, fish worksheet and various pivot tables. You will also be given the option of which marks you would like included in the fish worksheet.

**Exporting To Excel**

Hatchery/Natural

☒ Hatchery/Natural

☐ Any juvenile mark (except PIT)

☐ AD and AD/CwT Only

Punched

☒ Show Punched

☐ Just Opercle

☐ Just Caudal

☐ Any

EXPORT CANCEL

**Exporting To Excel**

Finishing output...

Hatchery/Natural

☒ Hatchery/Natural

☐ Any juvenile mark (except PIT)

☐ AD and AD/CwT Only

Punched

☒ Show Punched

☐ Just Opercle

☐ Just Caudal

☐ Any

FINISHED EXPORT CANCEL

While exporting the “Exporting to Excel” page will change a multitude of colors, that is good, it means it is working. When it is done exporting (or you have done something terribly wrong) the color change will stop. If you are lucky it will stop on hot pink like the example above. It will ask you to browse for a folder and then name the excel file. Once you have done that, click finished.

Selecting for “Hatchery/Natural” and/or “Punched” during export adds those columns to the spreadsheet, based on the Mark data (see below). This makes it easier to work with pivot tables if you are analyzing origin or escapement. Notice the Samples column lists all the samples that were taken from the carcass along with the sample numbers.

Stream	FromName	ToName	StartDate	HgCarcas	NFH	FL	ML	Age	Sex	Hatchery	Marks	MarkPresence	Punch	Samples
1 Crooked Fork	Brushy Fork	FS 109A (Haskell Cr Rd)	8/13/2009 1:00	TRUE	1	860	710	4	F	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0011), Aging Fin(09-0011)
46 Crooked Fork	Brushy Fork	FS 109A (Haskell Cr Rd)	8/26/2009 1:00	TRUE	1	720	610	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0015), Aging Fin(09-0015)
53 Crooked Fork	Brushy Fork	FS 109A (Haskell Cr Rd)	8/26/2009 1:00	TRUE	1	780	660	4	F	TRUE	Ad Clip; CWT	Ad Clip(Y); CWT(Y); PIT(N); ROP(N)	FALSE	DNA(09-0014), Aging Fin(09-0014), Snout(0920)
48 Crooked Fork	Brushy Fork	FS 109A (Haskell Cr Rd)	8/26/2009 1:00	TRUE	1	750	630	4	F	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0013), Aging Fin(09-0013)
49 Crooked Fork	Brushy Fork	FS 109A (Haskell Cr Rd)	8/26/2009 1:00	TRUE	1	740	590	4	F	TRUE	Ad Clip; CWT	Ad Clip(Y); CWT(Y); PIT(N); ROP(N)	FALSE	DNA(09-0012), Aging Fin(09-0012), Snout(0920)
54 Crooked Fork	FS 109A (Haskell Cr Rd)	Shotgun Creek	8/26/2009 1:00	TRUE	1	700	610	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0008)
55 Crooked Fork	FS 109A (Haskell Cr Rd)	Shotgun Creek	8/26/2009 1:00	TRUE	1	700	580	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0003)
60 Crooked Fork	MP167	MP168	8/28/2009 1:00	TRUE	1	810	700	4	F	TRUE	Ad Clip; CWT(092003)	Ad Clip(Y); CWT(Y); PIT(N); ROP(N)	FALSE	Snout(092003), DNA(090016), Aging Fin(090016)
62 Crooked Fork	MP167	MP168	8/28/2009 1:00	TRUE	1	800	660	4	F	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	
74 Crooked Fork	Mouth	Crooked Fork Creek	9/4/2009 1:00	TRUE	1	900	730	5	F	TRUE	Ad Clip; LOP	Ad Clip(Y); CWT(N); LOP(Y); PIT(N); ROP(N)	TRUE	DNA(090004), Aging Fin(090004)
78 Crooked Fork	Cliff Hole	Shotgun Creek	9/4/2009 1:00	TRUE	1	720	580	4	F	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	
79 Crooked Fork	FS 109A (Haskell Cr Rd)	Cliff Hole	9/4/2009 1:00	TRUE	1	720	580	4	F	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0009), Aging Fin(09-0009)
80 Crooked Fork	Rock Creek	FS 109A (Haskell Cr Rd)	9/4/2009 1:00	TRUE	1	780	650	4	M	UNKNOWN		Ad Clip(U); CWT(U); PIT(U); ROP(U)	UNKNOWN	
81 Crooked Fork	Rock Creek	FS 109A (Haskell Cr Rd)	9/4/2009 1:00	TRUE	1	880	700	5	M	TRUE	Ad Clip	Ad Clip(Y); CWT(N); PIT(N); ROP(N)	FALSE	
82 Crooked Fork	Rock Creek	FS 109A (Haskell Cr Rd)	9/4/2009 1:00	TRUE	1	730	590	4	M	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	
83 Crooked Fork	Rock Creek	FS 109A (Haskell Cr Rd)	9/4/2009 1:00	TRUE	1	730	620	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); PIT(N); ROP(N)	FALSE	
84 Crooked Fork	MP167	MP168	9/8/2009 1:00	TRUE	1	74	61	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); ROP(N)	FALSE	
85 Crooked Fork	MP167	MP168	9/8/2009 1:00	TRUE	1	70	59	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); ROP(N)	FALSE	
86 Crooked Fork	MP167	MP168	9/8/2009 1:00	TRUE	1	75	63	4	F	UNKNOWN		Ad Clip(U); CWT(N); ROP(N)	FALSE	
87 Crooked Fork	MP167	MP168	9/8/2009 1:00	TRUE	1	68	56	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); ROP(N)	FALSE	
88 Crooked Fork	MP167	MP168	9/8/2009 1:00	TRUE	1	88	73	5	M	TRUE	Ad Clip	Ad Clip(Y); CWT(N); ROP(N)	FALSE	
89 Crooked Fork	MP167	MP168	9/8/2009 1:00	TRUE	1	76	65	4	F	TRUE	Ad Clip	Ad Clip(Y); CWT(N); ROP(N)	FALSE	
92 Crooked Fork	Brushy Fork	FS 109A (Haskell Cr Rd)	9/16/2009 1:00	TRUE	1	870	700	4	M	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	
98 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	750	640	4	M	TRUE	Ad Clip	Ad Clip(Y); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0995), Aging Fin(09-0995)
99 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	810	650	4	M	FALSE	LOP; ROP	Ad Clip(N); CWT(N); LOP(Y); PIT(N); ROP(Y)	TRUE	DNA(09-0994), Aging Fin(09-0994)
100 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	530	420	3	M	TRUE	Ad Clip	Ad Clip(Y); CWT(N); PIT(N); ROP(N)	FALSE	DNA(09-0010), Aging Fin(09-0010)
101 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	960	760	5	M	FALSE	ROP	Ad Clip(N); CWT(N); PIT(N); ROP(Y)	TRUE	DNA(09-0992), Aging Fin(09-0992)
102 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	860	670	4	M	FALSE	ROP	Ad Clip(N); CWT(N); PIT(N); ROP(Y)	TRUE	DNA(09-0007), Aging Fin(09-0007)
103 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	840	660	4	M	FALSE	PIT(309.18F269837E)	Ad Clip(N); CWT(N); PIT(Y); ROP(N)	FALSE	DNA(09-0006), Aging Fin(09-0006)
104 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	870	700	4	M	FALSE	ROP	Ad Clip(N); CWT(N); PIT(N); ROP(Y)	TRUE	DNA(09-0005), Aging Fin(09-0005)
105 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	720	570	4	M	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	
106 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	720	570	4	M	FALSE		Ad Clip(N); CWT(N); PIT(N); ROP(N)	FALSE	
107 Crooked Fork	Crooked Fork Creek	Crooked Fork Creek	9/16/2009 1:00	TRUE	1	810	630	4	M	FALSE	LOP; ROP	Ad Clip(N); CWT(N); LOP(Y); PIT(N); ROP(Y)	TRUE	DNA(09-0001), Aging Fin(09-0001)

Redd data output (minus some columns).

Stream	FromName	ToName	StartDate	BookNumber	SampleMethod	Visibility	Redd	CountNew	CountPrevious	Latitude	Longitude	Notes
2 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/6/2009 1:00	CF01	Ground	Excellent	MK001	1	0	46.59452	-114.646	
3 Crooked Fork Lochsa River	Brushy Fork	FS 109A (Haskell Cr Rd) bridge site	8/6/2009 1:00	CF02	Ground	Excellent	AMH0001	1	0	46.5939	-114.605	
4 Crooked Fork Lochsa River	MP167	MP168	8/7/2009 1:00	CF03	Ground	Good						No fish/ No redds observed.
5 Crooked Fork Lochsa River	Crooked Fk. Cr. Screw Trap	MP167	8/8/2009 1:00	CF04	Ground	Excellent						
6 Crooked Fork Lochsa River	Crooked Fk. Cr. Screw Trap	MP167	8/8/2009 1:00	CF05	Ground	Good						
7 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/13/2009 1:00	CF06	Ground	Excellent	MK0005	1	0	46.59791	-114.637	No fish/ No redds observed.
8 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/13/2009 1:00	CF06	Ground	Excellent	MK0002	1	0	46.59396	-114.647	
9 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/13/2009 1:00	CF06	Ground	Excellent	MK0006	1	0	46.59749	-114.625	
10 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/13/2009 1:00	CF06	Ground	Excellent	MK0004	1	0	46.59391	-114.647	
11 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/13/2009 1:00	CF06	Ground	Excellent	MK0003	1	0	46.59435	-114.646	
12 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/13/2009 1:00	CF06	Ground	Excellent	MK0001	0	1	46.59452	-114.646	
13 Crooked Fork Lochsa River	Brushy Fork	FS 109A (Haskell Cr Rd) bridge site	8/13/2009 1:00	CF07	Ground	Good	AMH0001	0	1	46.5939	-114.605	
14 Crooked Fork Lochsa River	Brushy Fork	FS 109A (Haskell Cr Rd) bridge site	8/13/2009 1:00	CF07	Ground	Good	AMH002	1	0	46.59525	-114.612	
15 Crooked Fork Lochsa River	Brushy Fork	FS 109A (Haskell Cr Rd) bridge site	8/13/2009 1:00	CF07	Ground	Good	AMH003	1	0	46.59523	-114.612	
16 Crooked Fork Lochsa River	Brushy Fork	FS 109A (Haskell Cr Rd) bridge site	8/13/2009 1:00	CF07	Ground	Good	AMH004	1	0	46.59385	-114.605	
17 Crooked Fork Lochsa River	Brushy Fork	FS 109A (Haskell Cr Rd) bridge site	8/13/2009 1:00	CF07	Ground	Good	AMH005	1	0	46.59362	-114.605	
18 Crooked Fork Lochsa River	Brushy Fork	FS 109A (Haskell Cr Rd) bridge site	8/13/2009 1:00	CF07	Ground	Good	AMH006	1	0	46.58012	-114.611	
19 Crooked Fork Lochsa River	MP168	Brushy Fork	8/14/2009 1:00	CF08	Ground	Excellent						NO REDDS OR FISH OBSERVED
20 Crooked Fork Lochsa River	MP167	MP168	8/14/2009 1:00	CF09	Ground	Excellent	MK0008	1	0	46.56492	-114.644	
21 Crooked Fork Lochsa River	MP167	MP168	8/14/2009 1:00	CF09	Ground	Excellent	MK0007	1	0	46.56283	-114.645	
22 Crooked Fork Lochsa River	Crooked Fk. Cr. Screw Trap	MP167	8/15/2009 1:00	CF10	Ground	Excellent						NO REDDS AND NO FISH OBSERVED
23 Crooked Fork Lochsa River	Crooked Fk. Cr. Screw Trap	MP167	8/15/2009 1:00	CF11	Ground	Excellent						NO FISH AND NO REDDS OBSERVED
24 Crooked Fork Lochsa River	Mouth	Crooked Fork Creek Weir	8/15/2009 1:00	CF12	Ground	Excellent						NO FISH AND NO REDDS OBSERVED
25 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0017	1	0	46.59411	-114.647	
26 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0013	1	0	46.59399	-114.648	
27 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0014	1	0	46.59406	-114.647	
28 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0016	1	0	46.59411	-114.647	
29 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0018	1	0	46.59443	-114.646	
30 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0019	1	0	46.59806	-114.637	
31 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0020	1	0	46.59804	-114.637	
32 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0006	0	1	46.59749	-114.625	
33 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0001	0	1	46.59452	-114.646	
34 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0002	0	1	46.59396	-114.647	
35 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0003	0	1	46.59435	-114.646	
36 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0004	0	1	46.59391	-114.647	
37 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0005	0	1	46.59791	-114.637	
38 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0021	1	0	46.59744	-114.625	
39 Crooked Fork Lochsa River	FS 109A (Haskell Cr Rd) bridge site	Shotgun Creek	8/21/2009 1:00	CF16	Ground	Excellent	MK0015	1	0	46.59414	-114.647	

Pivot tables are automatically created upon export.

## Managing Waypoint Data

For ease of data entry in SGS2, it is essential to manage your waypoint data in a way that is organized, clear, and easily accessible. GPS units download waypoints into text files that contain most of the information you will need to import those waypoints into SGS2. Waypoint data can be easily organized and manipulated using Excel in order to associate it with the rest

of the survey data. Below is an example of a Master Waypoint List and CSV file created using Excel, from waypoints downloaded from a Garmin GPS unit.

For starters, it is a good idea to configure your GPS unit into WGS84 lat/lon decimal degrees. This is the format that SGS2 uses and will convert your data into if it is not already in that format. All conversions will decrease the accuracy of your waypoint data. When assigning names to waypoints in the GPS unit, use standard methodology that is clear and consistent. For example, name redds something like “REB001” or “RYF001” using R for redd (C for carcass, B for boundary), the collectors initials, or the stream name’s initials and a numbering system that is consecutive. Not all GPS units include the waypoint collection date when downloading, so having a good naming system in place will make it much easier to sort and organize your waypoint data. Download your waypoint data as promptly and as often as possible to decrease the risk of data loss.

Excel provides an excellent format for manipulating and storing waypoint data. This program allows you to include additional information with your waypoints, such as year, stream name, transect boundaries, descriptions, comments, UTM coordinates, etc. into a master list that can then be used to extract the data you will need for individual survey entries into SGS2. Once you’ve created your master waypoint list, you can copy and paste the records you want to import into SGS2 into a separate workbook and save that workbook as a temporary CSV (comma delimited) file by the survey date and stream name. In the CSV file, you will need the following column headers: Waypoint Name, LatDD (latitude in decimal degrees), LonDD (longitude in decimal degrees), and you may want to include a description column (ie. 2 redds, carcass, lower survey boundary). Note: The application will search for column headers that contain the following at minimum: ‘name’, ‘lat’, ‘lon’, ‘description’; however, more descriptive column headers like those in the previous sentence help you to understand the data type and format that your worksheet contains. Creating separate CSV files for each survey date is useful and keeps the number of waypoints to import lower, so that scrolling through and selecting those waypoints in SGS2 is not too time consuming.

The figure below shows a master waypoint list that contains all of the waypoints collected in 2009 between two stream systems, and the CSV file that was created using data extracted from the master waypoint list for an individual survey conducted on Sept. 7, 2009 on the Yankee Fork of the Salmon River. The CSV file contains all of the necessary information and appropriate column headers that SGS2 will need to search for and import the waypoint data.





## Overview of data entry form conventions

There are several options available in managing the grid. Options chosen by the user tend to be retained between uses of the program (though the actual behavior of the grid can be a little unpredictable). To start with, it is possible to reorganize the grid by clicking and dragging the column headings. However, the most significant options are all found by right clicking on the column headers. This will bring up a menu with options for sorting, grouping, and displaying columns.

**Protocols**

Protocol Name	Protocol ID
ISS SGS POWELL	144d9ddd-f6f3-493b-8801-caa0bdc14525
Default	44388418-c1ef-4ab8-999e-77f45ba9c974
2009 ISS SGS POWELL	66b7de58-62cd-498f-9c81-4f9ba11778ba

Current Protocol: ISS SGS POWELL    DFI FTF THIS    SAVE CHANGES    USE THIS PROTOCOL    QUIT IN DISGUST

EXPORT THIS PROTOCOL

Descriptions | Form Settings | Measurement Settings | Marks and Samples | Sample Prefixes

Measurement    Minimum Value    Maximum Value    Mandatory

Fork Length:

MEHP Length:

Total Length:

All lengths are in: centimeters.

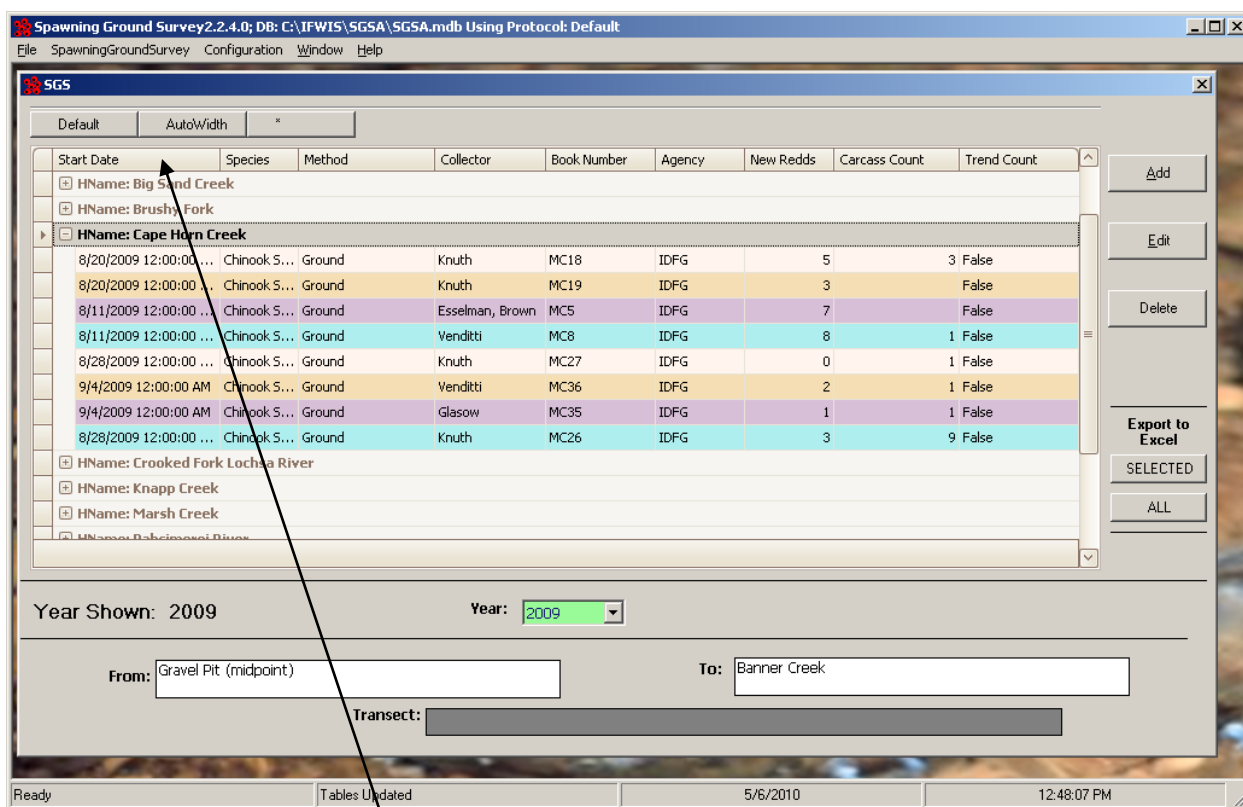
CHANGE SETTINGS

Sort Ascending  
Sort Descending  
Clear Sorting  
Group By This Column  
Group By Box  
**Column Chooser**  
Best Fit  
Clear Filter  
Best Fit (all columns)

Customization  
Drag and drop columns here to customize layout

This list may be empty, though it will probably contain several columns. Adding any of the columns to the grid is as simple as clicking on a column and dragging it from the list to anywhere on the grid. Where the column is dropped determines which existing columns border the new one, but it is not necessary to drop the column on the header row for this to work. Dragging displayed columns over to the “Column Chooser” list will remove the columns from the display.

Another feature of the grid is its ability to group records by one or more columns. To do this, right click on the column that you want to group by, and select the “Group By This Column” item. The user can group the grid by any number of visible columns chosen. However, it is advisable to first right click on the header row and select the “Group By Box” menu item. (Why this option is not automatically displayed when you group the grid by a column is baffling, as the “Group By Box” is the only good way to ungroup the grid.) The only other alternative is the Default button, but that will restore the grid to the way it was initially displayed, thereby undoing any organizational changes the user has made.



The example above has been grouped by stream but the dates and survey order (book number) are not organized. Clicking on any column header will sort according to that header.

The arrow indicates which column the surveys are sorted on.

Spawning Ground Survey 2.2.4.0; DB: C:\FWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

SGS

Default AutoWidth \*

Start Date	Species	Method	Collector	Book Number	Agency	New Redds	Carcass Count	Trend Count
HName: Big Sand Creek								
HName: Brushy Fork								
HName: Cape Horn Creek								
8/11/2009 12:00:00 AM	Chinook Salmon	Ground	Esselman, Brown	MC5	IDFG	7		False
8/11/2009 12:00:00 AM	Chinook Salmon	Ground	Venditti	MC8	IDFG	8	1	False
8/20/2009 12:00:00 AM	Chinook Salmon	Ground	Knuth	MC18	IDFG	5	3	False
8/20/2009 12:00:00 AM	Chinook Salmon	Ground	Knuth	MC19	IDFG	3		False
8/28/2009 12:00:00 AM	Chinook Salmon	Ground	Knuth	MC27	IDFG	0	1	False
8/28/2009 12:00:00 AM	Chinook Salmon	Ground	Knuth	MC26	IDFG	3	9	False
9/4/2009 12:00:00 AM	Chinook Salmon	Ground	Venditti	MC36	IDFG	2	1	False
9/4/2009 12:00:00 AM	Chinook Salmon	Ground	Glasow	MC35	IDFG	1	1	False
HName: Crooked Fork Lochsa River								
HName: Knapp Creek								
HName: Marsh Creek								
HName: Robinsons River								

Year Shown: 2009 Year: 2009

From: Mouth To: Gravel Pit (midpoint)

Transect:

Ready Tables Updated 5/6/2010 12:57:01 PM

Finally, on some of the grids (the “Spawning Ground Survey” grid for example), there is a trio of buttons located above the left corner. The first button is the “Default” button, followed by the “Auto Width” button and then lastly a button with a hard to see asterisk “\*”.

Spawning Ground Survey 2.2.4.0; DB: C:\FWIS\SGSA\SGSA.mdb Using Protocol: Default

File SpawningGroundSurvey Configuration Window Help

SGS

Default AutoWidth \*

Start Date	Species	Method	Collector	Book Number	Agency	New Redds	Carcass Count	Trend Count
HName: Big Sand Creek								
HName: Brushy Fork								
HName: Cape Horn Creek								
HName: Crooked Fork Lochsa River								
8/6/2009 1:00:00 AM	Chinook S...	Ground	Michael Kosinski	CF01	IDFG	1		False
8/6/2009 1:00:00 AM	Chinook S...	Ground	A HANSLEBEN	CF02	IDFG	1		False
8/7/2009 1:00:00 AM	Chinook S...	Ground	Kosinski; Hansl...	CF03	IDFG			False
8/8/2009 1:00:00 AM	Chinook S...	Ground	A HANSLEBEN	CF04	IDFG			False
8/8/2009 1:00:00 AM	Chinook S...	Ground	Kosinski, Michael	CF05	IDFG			False
8/13/2009 1:00:00 AM	Chinook S...	Ground	M KOSINSKI	CF06	IDFG	5		False
8/13/2009 1:00:00 AM	Chinook S...	Ground	A HANSLEBEN	CF07	IDFG	5	1	False
8/14/2009 1:00:00 AM	Chinook S...	Ground	A HANSLEBEN	CF08	IDFG			False
8/14/2009 1:00:00 AM	Chinook S...	Ground	KOSINSKI AND ...	CF09	IDFG	2		False
8/15/2009 1:00:00 AM	Chinook S...	Ground	A HANSLEBEN	CF10	IDFG			False
8/15/2009 1:00:00 AM	Chinook S...	Ground	M KOSINSKI	CF11	IDFG			False

Year Shown: 2009 Year: 2009

From: FS 109A (Haskell Cr Rd) bridge site To: Shotgun Creek

Transect:

Ready Tables Updated 5/6/2010 12:51:52 PM

The “Default” button will reset the column organization and sizing back to the way the grid was initially displayed. The “Auto Width” button will screw things up badly, thereby forcing the user to follow up the “Auto Width” button with a press of the “Default” button.

Note: What the “Auto Width” button is actually supposed to do is a bit mysterious. However, what it generally accomplishes is shrinking all the columns to the point where neither the captions nor the data are visible.

Now, the “\*” button on the other hand, is actually quite useful. It allows the user to add a name to a configuration that has been set up. This enables the grid to automatically organize itself to the laid out configuration chosen by the user.

## Data Access

### Web Reports

All data that has been uploaded to the Sequel Server can be viewed through Web Reports at the link below. With the Report Viewer, you can query for redd count data by Survey Year, Species, and/or Stream Name. Once a report is generated, you have many options for exporting the data.

<http://fishandgame.idaho.gov/ifwisparts/Pages/ReportViewer.aspx?%2fSpawning+Ground+Surveys%2fSGSMain&rs%3aCommand=Render>

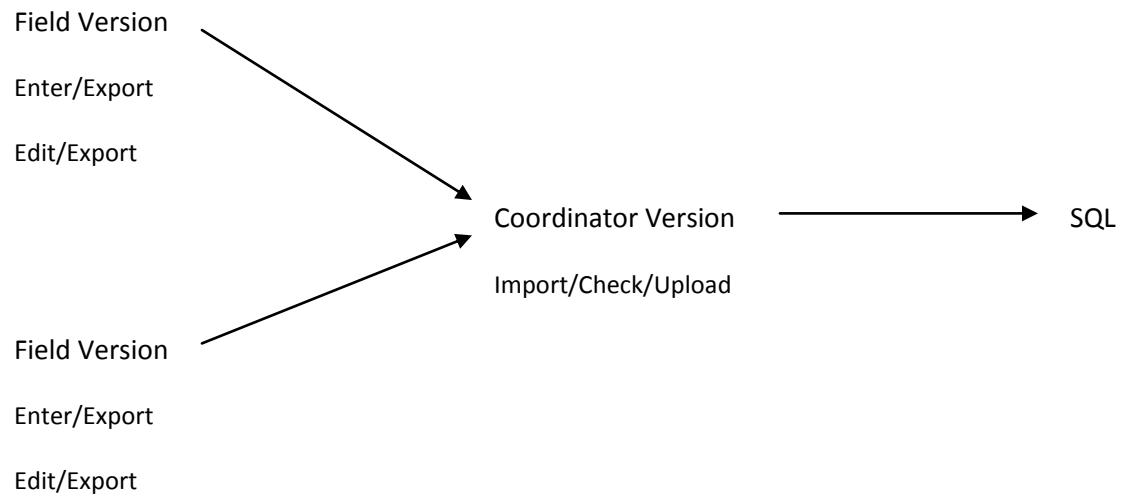
Username: partner

Password: fishdata

## Glossary

<b>Age</b>	Age of the fish observed or collected
<b>AgencyID</b>	The agency to which the Coordinator belongs
<b>AgingMethodID</b>	Method used to age the fish
<b>BookNumber</b>	Field book number or referenceID
<b>CarcassConditionID</b>	The overall condition of the carcass relative to the samples taken
<b>Collector</b>	Person or persons who collected the data (Last Name, First Name)
<b>Comments</b>	Comments about the redd(s)
<b>Comments</b>	Notes about the samples taken
<b>Coordinator</b>	Person responsible for compiling the data or Project Leader (Last Name, First Name)
<b>CountNew</b>	Number of redds not seen before this survey
<b>CountPrevious</b>	Number of redds seen but flagged before this survey
<b>DatumID</b>	Datum used for waypoints
<b>DirectionID</b>	Direction of the survey upstream or downstream
<b>EndDate</b>	Date the survey ended
<b>EndTime</b>	Time the survey ended
<b>Fish_WaypointID</b>	Waypoint for a carcass or carcasses
<b>flgCarcass</b>	Was the fish a carcass
<b>flgCarcassSurvey</b>	Was the survey just a carcass survey
<b>flgNoSurvey</b>	Was the survey not possible to do
<b>flgReddCount</b>	Was the survey a redd and carcass survey
<b>ForkLength</b>	Fork length of the fish observed or collected
<b>FromWaypoint</b>	Beginning point of the survey
<b>LLID</b>	The unique ID of the waterbody which was surveyed
<b>MEHPLength</b>	Mid-Eye to Hyperl Plate length of the fish observed or collected
<b>MFrom</b>	The distance in meters from the mouth of the stream where the survey began
<b>MTo</b>	The distance in meters from the mouth of the stream where the survey ended
<b>NFish</b>	Number of fish associated with the waypoint
<b>Notes (on Survey Form)</b>	Notes about the survey
<b>Notes (on Fish Form)</b>	Notes about the fish
<b>ParentStream</b>	Stream into which a stream flows.
<b>Pmeasure</b>	Meters from the mouth of a stream at which a feature occurs
<b>PercentSpawned</b>	Percent the fish was spawned
<b>Redd Name</b>	Name of the redd waypoint
<b>Redd_WaypointID</b>	Waypoint for a redd or multiple redds
<b>SampleMethodID</b>	The redd count sampling method of the survey
<b>SampleNumber</b>	Sample number associated with the samples taken off the fish
<b>SampleTypeID</b>	Type of sample taken
<b>SexDeterminationID</b>	How the gender determined
<b>SexID</b>	Gender of the fish observed or collected
<b>SpeciesID</b>	The target species of the survey
<b>StartDate</b>	Date the survey began
<b>StartTime</b>	Time the survey began
<b>TotalLength</b>	Total length of the fish observed or collected
<b>ToWaypoint</b>	Ending point of the survey
<b>TrendCount</b>	Was the survey the long term, index trend count for IDFG
<b>VisibilityID</b>	Qualitative estimate of survey's observation conditions

## Data Flow Diagram 1



## Data Flow Diagram 2

